DATED

DEPARTMENT FOR EDUCATION

and

PEARSON EDUCATION LIMITED

CONTRACT FOR THE PROVISION OF SERVICES IN RELATION TO THE ENGINEERING AND MANUFACTURING: MAINTENANCE, INSTALLATION AND REPAIR T LEVEL TECHNICAL QUALIFICATION

Contents

1 Contract start, formation and interpretation 1

2 Appointment and exclusivity 2

3 How the Services must be supplied 3

4 Pricing and payments 5

5 Developing the TQ and achieving DfE Approval 8

6 Operating the TQ 15

7 Interaction with Providers 15

8 TQ Changes 18

9 Record keeping, monitoring and reporting 21

10 Staff Transfer 22

11 Supplier Staff and Subcontracting 22

12 Rights and protection 23

13 Intellectual Property Rights 24

14 What may happen if there are issues with your provision of the Services 30

15 Ending or extending this Contract 33

16 How much each Party can be held responsible for 36

17 Insurance 37

18 Data protection and information 38

19 What must be kept confidential 40

20 When information can be shared 42

21 Invalid parts of this Contract 43

22 No other terms apply 43

23 Other people's rights in this Contract 43

24 Circumstances beyond either Party's control 43

25 Relationships created by this Contract 44

26 Giving up contract rights 44
27 Transferring responsibilities 44
28 Changing this Contract..... 45
29 How to communicate about this Contract 47
30 Dealing with claims 48
31 Preventing fraud, bribery and corruption 49
32 Equality, diversity, human rights and modern slavery 50
33 Health and safety 52
34 Environment 52
35 Tax 52
36 Conflict of interest 53
37 Reporting a breach of this Contract 53
38 Resolving disputes 53
39 Contract Performance Notices.....54
40 Which law applies 55
Schedule 1 - Definitions and Interpretation 57
Schedule 2 - Service Requirements 98
Schedule 3 - Implementation 427
Schedule 4 - Co-operation 507
Schedule 5 - Supplier's Response 512
Schedule 6 - Pricing Schedule 883
Schedule 6A – Adaptive Pricing.....892
Schedule 7 - Staff (including Key Personnel) 896
Schedule 8 - Supply Chain (including approved Subcontractors) 908
Schedule 9 - Data Handling and Security Management 911
Schedule 10 - Business Continuity 917
Schedule 11 - Change Management 924
Schedule 12 - Exit Management 925

Schedule 13 - Form of Guarantee - Not Used 1002

Schedule 14 - Form of Assignment and Licence 1004

Schedule 15 – Monitoring of Performance ……1028

Schedule 16 - Logos and Trademarks – T Level Trade Mark Licence 1042

Schedule 17 - Provider Contract requirements..... 1075

Schedule 18 - Commercially Sensitive Information 1080

Schedule 19 - Required Insurances..... 1091

Schedule 20 - Authorised Representatives..... 1095

Schedule 21 - Staff Transfer..... 1097

Schedule 22 – Entry Management ……1107

THIS CONTRACT is made on

BETWEEN:

(1) **DEPARTMENT FOR EDUCATION** of 20 Great Smith Street, London SW1P 3BT ("**Authority**"); and

(2) **PEARSON EDUCATION LIMITED**, a company registered in England and Wales (company registration number: **00872828**), whose registered office is at **80 Strand, London, WC2R 0RL** ("**Supplier**"),
each a "**Party**" and together the "**Parties**".

BACKGROUND TO THIS CONTRACT:

(A) On **30 April 2025** the Authority advertised in the Find a Tender Service (FTS) (reference **2025/S 000-017956**) inviting prospective suppliers to submit proposals for the design development and delivery of the technical education qualification element for the **Engineering and Manufacturing: Maintenance, Installation and Repair** T Level.

(B) On the basis of the Supplier's response to the advertisement and a subsequent tender process, the Authority selected the Supplier as its preferred supplier of the TQ.

(C) The Parties have agreed to contract with each other in accordance with the terms and conditions set out below. As well as the delivery stage, this Contract covers the Development Phase and a Pre-Delivery Phase.

OPERATIVE TERMS:

1 Contract start, formation and interpretation

1.1 This Contract is legally binding from the Effective Date until it ends in accordance with clause 15 (*Ending or extending this Contract*).

1.2 This Contract is formed by the Core Terms and the Schedules and the Supplier must comply with all of its obligations set out in both the Core Terms and the Schedules, provided always that in the event of any conflict between the provisions of the Core Terms and the Schedules and/or the Annexes, or between any of the Schedules and/or the Annexes, the conflict shall be resolved according to the following descending order of priority:

1.2.1 the Core Terms, Schedule 1 (*Definitions and Interpretation*), and Schedule 6 (*Pricing Schedule*);

1.2.2 Schedule 2 (*Service Requirements*), Schedule 4 (*Co-operation*) and their respective Annexes; and

1.2.3 the remaining Schedules and their respective Annexes.

1.3 The Parties shall interpret this Contract using Schedule 1 (*Definitions and Interpretation*).

2 Appointment and exclusivity

2.1 The Authority hereby appoints the Supplier as the provider of the Services in relation to the TQ during the Term.

2.2 As part of such appointment, the Supplier has the exclusive right to offer the TQ in England to Students for TQ courses for the Cohort for the Academic Years commencing at each of 1 August 2027, 1 August 2028, 1 August 2029, 1 August 2030, 1 August 2031 and, where the Authority gives written notice to the Supplier to extend this Contract pursuant to clause 15.2 (*Ending or extending this Contract*), for each of the Cohorts for the Academic Years commencing during an Extension Period, as the case may be, namely 1 August 2032, 1 August 2033, 1 August 2034 (each an "**Exclusive Cohort**").

2.3 Subject to the Supplier's compliance with the provisions of this Contract, the Authority shall not, during the Term, authorise any third party to provide goods and/or services equivalent to the Services in relation to the whole or any part of an Exclusive Cohort.

2.4 The Supplier acknowledges and agrees that during the Term the Authority may, subject to clause 2.3, authorise a third party to provide goods and/or services equivalent to the Services in relation to the TQ in England to students in cohorts outside the Exclusive Cohort, notwithstanding the continuation of the Services under this Contract in respect of any Exclusive Cohort.

2.5 The Supplier shall, subject to clause 15 (*Ending or extending this Contract*), be responsible for providing the Services to Students who are within an Exclusive Cohort until the later of the end of their TQ and 1 year following the end of the final Academic Year of the TQ for the Exclusive Cohort of which such Student was part.

2.6 Unless otherwise agreed with the Authority in writing, the TQ shall be offered by the Supplier on the basis that teaching of the TQ by Providers for each Exclusive Cohort will commence in September of the relevant Academic Year (accepting that Students

may, subject to applicable Supplier and Provider rules, commence their study of the relevant TQ later than the teaching commencement date).

3 How the Services must be supplied

3.1 The Supplier must provide the Services:

3.1.1 in full compliance with the Service Requirements and the Supplier's Response, provided always that:

(i) the fact that the Supplier has complied with the Supplier's Response shall not limit the Supplier's obligation to satisfy the Service Requirements; and

(ii) the fact that the Supplier has satisfied the Service Requirements shall not limit the Supplier's obligation to comply with the Supplier's Response;

3.1.2 to a professional standard;

3.1.3 with reasonable skill and care;

3.1.4 using Good Industry Practice;

3.1.5 in accordance with its own policies, processes and quality control measures to the extent that these do not conflict with this Contract;

3.1.6 in accordance with any agreed timings set out in this Contract;

3.1.7 in accordance with Law;

3.1.8 in accordance with the Conditions of Recognition;

3.1.9 in a manner that ensures that neither it, nor any of the Supplier Staff:

(i) brings the Authority or Skills England into disrepute by engaging in any act or omission which is reasonably likely to diminish the trust that the public places in any or all of them; and/or

(ii) engages in any act or omission which is reasonably likely to bring the T Levels Programme into disrepute, in either case, regardless

of whether or not such act or omission is related to the Supplier's obligations under this Contract; and

3.1.10 in accordance with (and in a manner consistent with enabling the Supplier and the T Level Awarding Organisations to achieve the aims set out in) Schedule 4 (*Co-operation*).

3.2 The Supplier must:

3.2.1 co-operate and, where appropriate, consult with the Stakeholders and the Authority's third-party suppliers, including but not limited to the Former Supplier, on all aspects connected with the delivery of the Services; and

3.2.2 ensure that Supplier Staff comply with any reasonable instructions of the Authority in relation to the Services.

Ofqual Recognition

3.3 The Supplier must have in place from the Effective Date and maintain throughout the Term, Ofqual Recognition.

3.4 The Supplier must comply with each Condition of Recognition throughout the Term.

Impact of approval by the Authority

3.5 The Supplier agrees and accepts that except for confirmation of a Variation pursuant to clause 28 (*Changing this Contract*), which expressly changes the Supplier's obligations or liabilities or the Authority's rights under this Contract, no review, comment, authorisation to proceed (as contemplated by clause 5.11.1) or approval by the Authority (including any DfE Approval) in connection with any Product and/or Service (including in respect of the Supplier's Response, the Implementation and Delivery Plan, the Resource Plan and any documents or information submitted by the Supplier in order to obtain DfE Approval) shall operate to exclude or limit the Supplier's obligations or liabilities or the Authority's rights under this Contract, and:

3.5.1 the Supplier retains sole responsibility for ensuring that the TQ (including the Products and Services) meets and continues to meet all relevant Service Requirements (as they may be amended from time to time in accordance with this Contract) throughout the Term; and

3.5.2 the Supplier acknowledges and accepts that any review, comment, authorisation to proceed or approval (including any DfE Approval) do not constitute or imply any warranty from the Authority or Ofqual in respect of the TQ.

4 Pricing and payments

4.1 In exchange for the provision of the Services (including the supply of the Products), the Supplier must invoice:

4.1.1 the Authority for the relevant Charges, which, in the case of:

(i) the Development Charge, shall be invoiced by the Supplier at the time and in the manner set out in clauses 5.11.1(ii), or 5.13.1(ii) (*Developing the TQ and achieving DfE Approval*) (as applicable));

(ii) that part of the Charges referred to in limb (b) of the definition of Charges, shall, unless otherwise agreed by the Authority, be invoiced by the Supplier on DfE Approval of the relevant TQ Change; and

(iii) that part of the Charges referred to in limb (c) of the definition of Charges, shall be invoiced by the Supplier as set out in the relevant Variation; and

4.1.2 the Approved Providers for the Fees pursuant to the applicable Provider Contract.

4.2 The Supplier acknowledges and agrees that:

4.2.1 in no circumstances shall the Authority or Skills England have any liability to the Supplier in respect of the Fees. The Authority is not liable if any Provider (or other third party) fails to pay any fees or other costs (including the Fees) due from them to the Supplier; and

4.2.2 save as permitted by the relevant Provider Contract, the Supplier shall not be entitled to levy any costs and/or charges and/or require any further and/or additional payment in respect of the provision of the Services (including the supply of any Products) to any Approved Provider (and/or any Student) other than the Fees.

4.3 All Fees and Charges:

4.3.1 exclude VAT, which is payable on provision of a valid VAT invoice to the applicable payor; and

4.3.2 include all costs payable by the Authority and/or any Provider (as the case may be) in connection with the Services (including the supply of the Products).

4.4 The Authority must pay the Supplier:

4.4.1 in respect of the Development Charge, the relevant Interim Milestone Payment or the Final Milestone Payment (as the case may be); or

4.4.2 in respect of any other Charges arising under clause 8 (*TQ Changes*) or clause 28 (*Changing this Contract*), the amount of any such Charges due under such clause 8 (*TQ Changes*) or clause 28 (*Changing this Contract*); in each case, within 30 days of receipt by the Authority of a valid, undisputed invoice, in cleared funds to the account as notified by the Supplier to the Authority.

4.5 A Supplier invoice is only valid if it includes this Contract reference and purchase order number (if any) and other details reasonably requested by the Authority.

4.6 If there is a Dispute between the Parties as to the amount invoiced by the Supplier to the Authority, the Authority must pay the undisputed amount. The Supplier cannot suspend the provision of the Services (including the supply of the Products) unless the Supplier is entitled to terminate this Contract for a failure to pay undisputed sums in accordance with clause 15.6 (*When the Supplier can end this Contract*). Any disputed amounts shall be resolved through the Dispute Resolution Procedure.

4.7 If a payment of an undisputed amount is not made by the Authority by the due date, then the Authority shall pay the Supplier interest at the interest rate specified in the Late Payment of Commercial Debts (Interest) Act 1998.

4.8 The Supplier can issue a written Reminder Notice to the Authority (in accordance with clauses 29.1 and 29.2 (*How to communicate about this Contract*)) if the Authority does not pay an undisputed invoice on time.

4.9 The Authority may retain, or set-off payment of any amount owed to it by the Supplier if notice and reasons are provided.

4.10 The Supplier must ensure that all Subcontractors are paid, in full, within 30 days of receipt of a valid, undisputed invoice. If this does not happen, the Authority can publish the details of the late payment or non-payment. The Supplier must also ensure that any Sub-Contract it enters into contains provisions which have the same effect as clauses 4.4, 4.6, 4.7 and this clause 4.10.

4.11 The Supplier has no right of set-off, counterclaim, discount or abatement unless a court orders this.

Indexation of Fees and Rate Card rates

4.12 The Supplier shall be entitled to adjust the Fees and the Rate Card rates which apply in respect of any Academic Year following the Academic Year in which the TQ is launched in accordance with the provisions of clause 4.13 to reflect the impact of inflation.

4.13 Where the Supplier wishes to adjust the Fees and/or Rate Card rates in accordance with clause 4.12:

4.13.1 the Supplier shall notify the Authority in writing of the proposed percentage adjustment in the existing Fees and/or Rate Card rates and the resulting new Fees and/or Rate Card rates by the end of February in the Academic Year prior to the Academic Year in respect of which the adjustment is to apply ("**Calculation Date**");

4.13.2 the proposed percentage adjustment to the relevant then current Fees or Rate Card rates must be no greater than the percentage increase in the preceding 12 months of the UK Consumer Price Index most recently published by the UK Office of National Statistics prior to the Calculation Date; and

4.13.3 the proposed adjustment calculated in accordance with this clause 4.13 shall not operate to adjust the Fees or Rate Card rates for the then current Academic Year but shall operate to adjust the Fees or Rate Card rates as applicable with effect from the immediately following Academic Year.

4.14 In addition to any changes to the Entry Fee by virtue of clause 4.13, the Entry Fee may be subject to change from time to time, in accordance with the provisions set out in Schedule 6A.

4.15 Except as set out in clause 4.13, neither the Charges, the Fees nor any other costs, expenses, fees or charges shall be adjusted to take account of any inflation, change to exchange rate, change to interest rate or any other factor or element which might otherwise increase the cost to the Supplier or Subcontractors of the performance of their obligations under this Contract.

5 Developing the TQ and achieving DfE Approval

5.1 The Supplier shall develop the TQ to meet the Service Requirements and in accordance with the terms of this Contract.

Requirement for DfE Approval

5.2 The Supplier acknowledges and accepts that:

5.2.1 the Supplier shall not make the whole or any part of the Initial TQ Deliverables available to Eligible Providers and/or Approved Providers for delivery to Students until DfE Approval has been granted; and

5.2.2 the Supplier shall, where possible, (and in each case with the prior written consent of the Authority) share draft versions of the Initial TQ Deliverables and Guide Standard Exemplification Materials, with Eligible Providers and/or Approved Providers to support their preparations to deliver the TQ.

General development obligations

5.3 The Supplier must:

5.3.1 design and develop the TQ in accordance with paragraphs 2.1 and 2.2 of Part 1 of the Service Requirements and in order to meet the Milestones;

5.3.2 consult with:

(i) the Authority, Skills England and the Route Panels; and

(ii) a representative sample of Providers and Employers,

in the design and development of the TQ (including as contemplated by paragraph 2.1.4 of the Service Requirements);

5.3.3 take into account any input received from the Route Panel, and where applicable, the T Level Panels in the design and development of the TQ, and consult as appropriate with the T Level Panels and/or the Route Panel prior to the first Interim Milestone;

5.3.4 co-operate (as required) and work collaboratively with the Authority to achieve DfE Approval of the TQ;

5.3.5 take into account the TQ Service Requirements Explanatory Note together with any guidance as issued by the Authority from time to time in the design and development of the TQ, and provide input when reasonably requested by the Authority to support the development and updating of such TQ Service Requirements Explanatory Note; and

5.3.6 submit to the Authority an updated Implementation and Delivery Plan, Entry Transition Plan (where required), and Resource Plan within 5 Working Days from the Effective Date.

Development support from the Authority

5.4 The Supplier Authorised Representative and/or senior representatives of the Supplier's development team as appropriate will meet monthly (or more frequently if deemed necessary by the Authority) with the Authority Authorised Representative and/or representatives of the Authority's TQ Development Team, or such other team that the Authority appoints, at a time and location to be advised by the Authority, following the Effective Date until DfE Approval of the TQ (each a "**TQ Development Meeting**") to review progress on TQ development, address key risks and identify solutions to any barriers to progress. The Authority shall issue an agenda in advance of each TQ Development Meeting. In the event that the development of the TQ is materially delayed against the Milestones and/or the dates given in the Implementation and Delivery Plan, on a written request by the Authority the Supplier's Chief Executive Officer or an equivalently senior individual shall attend the next TQ Development Meeting.

5.5 The Supplier shall:

5.5.1 within 5 Working Days after the end of each Contract Month and prior to each TQ Development Meeting, submit the Development Phase Report to the Authority in respect of the relevant month, together with, without prejudice to paragraph 2.5 of Part 1 of the Service Requirements:

(i) updated versions (meeting all of the requirements of the relevant Product Description) of the following Products:

(A) the Implementation and Delivery Plan;

(B) the Resource Plan;

(C) the Risk Register; and

(D) the Issues Log;

(E) the Entry Transition Plan (where relevant); and

(ii) as requested by the Authority from time to time, the then current versions of the following:

(A) the TQ Specification;

(B) the Assessment Strategy;

(C) the TQ Specimen Assessment Materials;

(D) the Guide Standard Exemplification Materials;

(E) the Provider Approval Criteria;

(F) the Submission Issues Log;

(G) Employer & Provider Engagement Strategy; and

(H) any draft version of the Key Dates Schedule that the Supplier intends shall (if Approved) become the Key Dates Schedule for the purposes of this Contract from time to time,

it being understood that the Supplier will not be in breach of this clause 5.5.1 if the relevant item is still being developed and the Milestone for its

completion has not been reached as at the date of the relevant TQ Development Meeting; and

5.5.2 provide a verbal summary at each such TQ Development Meeting of the progress of development of the TQ as against the Implementation and Delivery Plan and Resource Plan and any identified risks to the on-time delivery of the TQ and proposed resolutions.

5.6 The Authority shall provide minutes setting out an accurate summary of each such TQ Development Meeting within 5 Working Days of each such meeting.

Submission process

5.7 The Supplier shall, on or prior to the applicable Submission Date, make all Submissions to the Authority necessary in respect of DfE Approval in accordance with paragraphs 2.1 and 2.2 of Part 1 and Annex 7 to the Service Requirements.

5.8 The Supplier shall ensure that all Submissions made in accordance with clause 5.7 meet all of the requirements for each Submission as set out in paragraph 2.1 of Part 1 and Annex 7 to the Service Requirements. Unless notified otherwise by the Authority in writing, the Supplier shall continue its ongoing work in relation to the Initial TQ Deliverables following each Submission whilst such Submission is being considered by the Authority and/or Ofqual. For the avoidance of doubt, this means that the Supplier, following each Submission for each Interim Milestone, shall not await notification from the Authority in accordance with clause 5.11 below before continuing work on the Initial TQ Deliverables required for any subsequent Milestone.

5.9 The Supplier shall submit to the Authority for Approval, a final version of the Guide Standard Exemplification Materials in accordance with paragraph 2.1 of Part 1 and Annex 7 to the Service Requirements.

5.10 The Supplier shall respond promptly to the Authority to any requests from the Authority for further information to support any Submission and/or the DfE Approval process.

5.11 In respect of each Interim Milestone, the Authority and, if relevant, Ofqual will consider each Submission made in accordance with clause 5.7 and 5.8 and, within a timeframe which should allow the TQ to be developed in time for delivery in accordance with this Contract:

5.11.1 if the Authority considers that the Submission (or Re-Submission (as the case may be)) meets all of the requirements of paragraphs 2.1 and 2.2 of Part 1 and Annex 7 to the Service Requirements for the relevant Interim Milestone, the Authority shall:

(i) confirm in writing to the Supplier that such requirements have been met; and

(ii) where the relevant Interim Milestone attracts an Interim Milestone Payment, pay to the Supplier (in accordance with clause 4 (*Pricing and payments*)) the applicable Interim Milestone Payment; or

5.11.2 if (1) the Authority does not consider that the Submission (or Re-Submission (as the case may be)) meets all of the requirements of paragraphs 2.1 and 2.2 of Part 1 and Annex 7 to the Service Requirements for the relevant Interim Milestone and/or (2) the Supplier has outstanding issues still to be addressed / additional information still to be provided in relation to any previous Interim Milestones (including in relation to any previous Interim Milestones that do not attract an Interim Milestone Payment), the Authority may withhold payment to the Supplier of the applicable Interim Milestone Payment (if any) and shall:

(i) notify the Supplier of the issues that need to be addressed and/or the additional information that needs to be provided (and, acting reasonably, the date by which such issues need to be addressed and/or such information needs to be provided) and whether the Authority will be withholding payment of the applicable Interim Milestone Payment (if any), and the Supplier shall promptly address such issues and resubmit the relevant documentation and/or provide such additional information (a "**Re-Submission**") to the Authority on or prior to the date notified by the Authority, following which clause 5.11.1 or this clause 5.11.2 will apply to such Re-Submission; or

(ii) notify the Supplier:

(A) that notwithstanding the failure of the Submission (or Re-Submission (as the case may be)) to meet all of the requirements of paragraphs 2.1 and 2.2 of Part 1 and Annex

7 to the Service Requirements for the relevant Interim Milestone, the Supplier shall continue with the design and development of the TQ without having to make a Re-Submission, provided that the relevant issues are addressed by any timescales specified by the Authority and in any event no later than by the Final Approval Milestone Date; and

(B) whether the Authority will be withholding payment of the applicable Interim Milestone Payment (if any), following which the Supplier shall promptly address the issues identified / further information required, as part of its ongoing development of the TQ in accordance with the timescales specified by the Authority. If the Authority is withholding payment of any applicable Interim Milestone Payment, subject to the Supplier having addressed the issues identified in accordance with the required timescales (and in any event no later than by the Final Approval Milestone Date), clause 5.11.1(ii) will apply.

5.12 The Supplier acknowledges and agrees that owing to the meeting dates scheduled for the DfE Approval process, any delay in making the Final Submission to the Authority by the Final Approval Milestone Date may cause a delay of several weeks for DfE Approval. Accordingly, failure by the Supplier to make the Final Submission in accordance with clause 5.7 and/or 5.8 by the Final Approval Milestone Date, other than due to a breach of this Contract by the Authority, shall be a Critical Service Failure.

5.13 In respect of the Final Approval Milestone, the Authority and, if relevant, Ofqual will consider the Final Submission made by the Supplier in accordance with clause 5.7 and 5.8 and, within a timeframe which should allow the TQ to be developed in time for delivery in accordance with this Contract:

5.13.1 if the Authority considers that the Final Submission (or Final Re-Submission (as the case may be)) meets the requirements for DfE Approval, then the Authority shall:

(i) confirm to the Supplier in writing that the TQ has DfE Approval and that, subject (if applicable) to clause 7.2 (*Interaction with* Providers)

and clause 14.3.1 (*What may happen if there are issues with your provision of the Services*), the Supplier is authorised to proceed to make the TQ available to Approved Providers for delivery to Students in accordance with clause 6 (*Operating the TQ*); and

(ii) pay to the Supplier (in accordance with clause 4 (*Pricing and payments*)) the Final Milestone Payment, together with any outstanding Interim Milestone Payments or;

5.13.2 if the Authority considers that the Final Submission (or Final Re-Submission (as the case may be)) does not meet the requirements for DfE Approval, then the Authority shall either

(i) notify the Supplier in writing of the issues that need to be addressed and/or the additional information that needs to be provided and the Supplier shall within 10 Working Days (or such longer timeframe as is agreed in writing by the Authority) address such issues and resubmit the relevant documentation and/or provide such additional information, following which this clause 5.13 will apply to such Final Re-Submission or

(ii) take any other steps available to it under the contract.

5.14 The Supplier acknowledges and accepts that the Authority will share, as it deems necessary, with Ofqual, Skills England, and the Route Panel:

5.14.1 all Submissions (including any Final Submission) and/or Re-Submissions (including any Final Re-Submissions) submitted by the Supplier under clause 5.7 and/or clause 5.13;

5.14.2 any information required by the Authority pursuant to clause 5.10;

5.14.3 any information required by Ofqual for the Regulation of the TQ or to perform the statutory functions of Ofqual; and/or

5.14.4 any other information it holds in relation to the Supplier, and the provisions of clause 19 (*What must be kept confidential*) will not prevent any disclosure or sharing of documentation and/or information by the Authority under this clause 5.14.

6 Operating the TQ

6.1 Following DfE Approval the Supplier must (subject to clause 7.2 (*Interaction with Providers*) and clause 14.3.1 (*What may happen if there are issues with your provision of the Services*)) make the TQ (including (as applicable) the Products) available to Approved Providers for delivery to Students and provide the Services (other than the Initial Development Services) in accordance with the Service Requirements.

6.2 The Supplier shall meet all KPIs in the delivery of the Services (other than the Initial Development Services).

6.3 The Supplier must comply with the current version of any Key Dates Schedule in respect of the making available of the TQ and the performance of the Services (other than the Initial Development Services).

6.4 The Supplier must provide materials and Student Information to the Authority in accordance with paragraphs 5, 8 and 10 of Part 1 of the Service Requirements to enable the Authority to keep a record in the event such materials and/or information is required for the transfer of Services to a Replacement Supplier.

6.5 The Supplier shall promptly provide to the Authority such materials relating to the TQ and Student Information as are requested in writing by the Authority to enable work by or on behalf of the Authority and/or Ofqual to ensure the ongoing maintenance between Cohorts of the grades and standards of the TQ and the wider T Level Programme.

6.6 The Supplier shall actively promote the TQ to Eligible Providers and Approved Providers.

7 Interaction with Providers

7.1 The Supplier shall, in accordance with the requirements set out in paragraph 3 of Part 1 of the Service Requirements, operate a procedure to receive applications for Provider Approval from Eligible Providers that wish to make the TQ available to Students, and where the relevant Provider Approval Criteria are met to grant Provider Approval and notify the Approved Providers accordingly. The Supplier acknowledges and agrees that:

7.1.1 it shall not be entitled or permitted to:

(i) charge any additional costs, charges and/or fees arising out of or in connection with the implementation and operation of such procedure and/or the granting of Provider Approval; and/or

(ii) impose any additional requirements (other than a Provider Contract) on any Eligible Provider and/or Approved Provider (as applicable) as a condition to and/or consequence of the grant of Provider Approval;

7.1.2 only an Eligible Provider shall be eligible to be granted Provider Approval by the Supplier in respect of the TQ; and

7.1.3 subject to clause 7.1.2 and without prejudice to paragraph 3.1.1 of Part 1 of the Service Requirements, the Supplier shall promptly grant Provider Approval to Eligible Providers who meet the Provider Approval Criteria following receipt of their application for Provider Approval.

7.2 The Supplier shall review and assess Approved Providers on an ongoing basis in accordance with paragraph 3.1.2 of Part 1 of the Service Requirements to ensure that they continue to meet the requirements for Provider Approval to make the TQ available to Students and, subject to the provisions of paragraphs 3.2 to 3.5 (inclusive) of Part 1 of the Service Requirements, where an Approved Provider no longer meets the Provider Approval Criteria, the Supplier shall revoke such Provider Approval.

7.3 The Supplier shall ensure that:

7.3.1 prior to any Eligible Provider making the TQ available to Students:

(i) the Eligible Provider is an Approved Provider;

(ii) a binding Provider Contract is in place with the relevant Approved Provider; and

7.3.2 the Provider Services shall only be provided to an Approved Provider during the term of, and subject to the provisions of, the applicable Provider Contract.

7.4 Without prejudice to paragraph 5 of Part 1 of the Service Requirements, the Supplier shall promptly register a Student for the TQ following receipt by the Supplier of an application for registration of that Student from an Approved Provider.

7.5 The Supplier shall, on written request by the Authority, promptly provide a copy of each Provider Contract to the Authority.

7.6 The Supplier shall retain copies of all documentation and information in relation to arrangements with Eligible Providers and Approved Providers, including all such documentation and/or information arising out of or in connection with:

7.6.1 the application for and/or the grant of Provider Approval referred to in clause 7.1; and

7.6.2 the ongoing monitoring of Approved Providers by the Supplier referred to in clause 7.2,

and without prejudice to the generality of the definition of DfE Data, such documentation and information shall form part of the DfE Data to which the provisions of clause 18 (*Data protection and information*) shall apply.

7.7 The Supplier shall make available the Additional Services and provide the Additional Services on request by Approved Providers in accordance with paragraphs 5, 6, and 9 of Part 1 of the Service Requirements.

7.8 The Supplier shall be permitted to offer and provide additional products and/or services in each case related to the TQ to Approved Providers (and Students), provided always that:

7.8.1 such additional products and services are not identical to, or performing an equivalent function in relation to the TQ to, the whole or any part of the Products and/or the Services (including the Additional Services) and offered and/or provided on alternative terms and/or conditions (including as to timing or quality) to those terms and conditions which would apply pursuant to this Contract to the applicable Products and/or Services;

7.8.2 without prejudice to clause 7.1.1(ii) and the requirements of Schedule 17 (*Provider Contract Requirements*), the Supplier shall not, other than the Provider Contract, impose any condition on any Eligible Provider (including any Approved Provider) and/or Student to purchase such additional products and/or services as a condition to and/or consequence of:

(i) the grant of any Provider Approval; and/or

(ii) the proper performance of any of the Services (and/or the supply of any Products); and

7.8.3 the Supplier shall not (in making available such products and/or services available and/or in respect of the terms on which such products and/or services are made available) favour one Provider and/or group of Providers or one Student and/or group of Students over another.

7.9 The Supplier shall comply with Schedule 17 (*Provider Contract Requirements*) in respect of its contracts with Approved Providers in relation to the TQ.

8 TQ Changes

8.1 The Supplier acknowledges and agrees that the Authority may request changes to the TQ and that the Authority may publish revised Outline Content from time to time.

8.2 The Supplier must ensure that the Approved Initial TQ Deliverables reflect the version of the Former Supplier's TQ Specification as at the Effective Date ("**Initial Content Date**") and that the Approved Initial TQ Deliverables reflect any TQ Change requested by the Authority before DfE Approval.

8.3 The Supplier must make any TQ Change reasonably requested by the Authority to reflect any changes to the Former Supplier's TQ Specification or, if relevant, the Outline Content following the Initial Content Date subject to the terms of this clause 8.

8.4 The Authority may carry out annual reviews in each Academic Year where a new Cohort is commencing the TQ in the following Academic Year to identify any potential TQ Changes required by the Authority. The Authority may prepare and submit to the Supplier by the relevant dates prescribed by the TQ Content Updating Schedule in each such Academic Year up to two annual guidance notes setting out the output of the Authority's reviews in relation to Inclusive TQ Changes and Exclusive TQ Changes respectively. Where the Authority identifies any potential TQ Change (in an annual guidance note or otherwise), the Authority shall promptly notify the Supplier in writing of details of the potential TQ Change.

8.5 Without prejudice to paragraphs 2.5 and 2.6 of Part 1 of the Service Requirements which shall apply in addition to any annual review, the Supplier shall carry out an annual review of the TQ once in each Academic Year, taking into account the output of any Authority annual guidance note(s) pursuant to clause 8.4 and any additional updates the Supplier has proposed to the TQ (to the extent that such updates have not

otherwise been Approved pursuant to paragraph 2.5 or 2.6 of Part 1 of the Service Requirements), to identify any potential TQ Changes required to ensure ongoing compliance of the TQ with the Service Requirements. Where the Supplier identifies any potential TQ Change, the Supplier shall promptly notify the Authority in writing of details of the potential TQ Change.

8.6 Where a TQ Change is an Exclusive TQ Change, the Parties shall follow the Variation procedure set out in clause 28 (*Changing this Contract*) in respect of the relevant Exclusive TQ Change. The Charges relating to such Exclusive TQ Change shall be agreed between the Parties as part of the Impact Assessment for the relevant Variation, each Party acting reasonably and promptly, prior to the Supplier commencing work on the Exclusive TQ Change. The relevant Charges shall:

8.6.1 be a reasonable cost for implementing the Exclusive TQ Change in the circumstances;

8.6.2 take into account and be calculated using:

(i) for personnel related costs and other relevant charges which are set out in the Rate Card, the applicable Rate Card rates; and

(ii) reasonable charges for any non-personnel related costs which are not included in the Rate Card and which will be incurred by the Supplier to implement the Exclusive TQ Change; and

8.6.3 be consistent with the costs applicable to any relevant costed change scenario set out in Schedule 6 (*Pricing Schedule*) or, where no costed change scenario for the applicable TQ Change is set out in Schedule 6 (*Pricing Schedule*), be calculated on the same basis and using the same logic and inputs as those which applied to determine the costs for the costed change scenarios, as such logic and inputs may be amended only to the extent as is necessary to reflect the TQ Change in question.

8.7 Where the TQ Change is an Inclusive TQ Change, the Supplier shall implement such Inclusive TQ Change at the cost of the Supplier and there shall be no additional Charges or Fees as a result of such Inclusive TQ Change.

8.8 The Supplier shall obtain the Authority's prior written agreement before implementing any TQ Change which, in the case of an Exclusive TQ Change, shall be in the form of

an executed Variation to this Contract. Following such agreement the Supplier shall, unless otherwise agreed with the Authority, implement:

8.8.1 Inclusive TQ Changes such that the updated TQ is ready for teaching to new Students in the next Academic Year following the date of such agreement; and

8.8.2 Exclusive TQ Changes such that the updated TQ is ready for teaching to new Students in the second Academic Year following the date of such agreement,

provided that in each case that the Supplier shall continue to make available the version of the TQ prior to such TQ Change as is necessary to support continuing Students who commenced their studies on such version of the TQ prior to the implementation of such TQ Change.

8.9 The Supplier shall consult with a representative sample of relevant Employers and take into account the output of consultation with such Employers as appropriate in relation to any TQ Change in accordance with the Service Requirements and shall provide the Authority with evidence of such consultation.

8.10 If the Supplier makes any Inclusive TQ Changes, the Supplier must resubmit the TQ documentation including any Products (as amended to reflect the TQ Change in question) to the Authority for agreement by the relevant date prescribed by the TQ Content Updating Schedule, unless otherwise agreed with the Authority, before (where applicable) making the relevant revised version of the TQ available to Approved Providers for delivery to Students.

8.11 If the Supplier makes any Exclusive TQ Changes, the Supplier must resubmit the TQ documentation including any Products (as amended to reflect the TQ Change in question) to the Authority for DfE Approval by the relevant date prescribed by the TQ Content Updating Schedule, unless otherwise agreed with the Authority, before (where applicable) making the relevant revised version of the TQ available to Approved Providers for delivery to Students and the provisions of clause 5.13 shall apply to such amended TQ documentation as if references to the “Final Submission” (or “Final Re-Submission” (as the case may be)) in that clause 5.13 are references to the “TQ documentation including any Products (as amended to reflect the TQ Change in question)”; reference to the “Final Approval Milestone” is a reference to the “TQ Change in question”; and references to payment refer to payment of any charges agreed in the applicable Variation.

8.12 Unless otherwise agreed with the Authority in writing, any agreed or approved (as the case may be) updates to the TQ must (where applicable) be made available to Approved Providers by the Supplier by the relevant date prescribed by the TQ Content Updating Schedule.

9 Record keeping, monitoring and reporting

9.1 Without prejudice to clause 5.5 (*Developing the TQ and achieving DfE Approval*) and clause 7.6 (*Interaction with Providers*), the Supplier shall:

9.1.1 monitor and report (in an Operational Delivery Report) its performance of the Services (other than the Initial Development Services) in accordance with Schedule 15 (*Monitoring of Performance*) and the Parties agree that the provisions of such Schedule 15 (*Monitoring of Performance*) shall apply to determine (amongst other things) the process following (and the outcome of) such monitoring and reporting (including in relation to the carrying out of the Performance Review Meeting and the requirement for and consequences of any KPI Improvement Plan); and

9.1.2 comply with the record keeping and reporting obligations set out in paragraphs 5, 8 and 10 of Part 1 of the Service Requirements.

9.2 The Supplier must allow, and must ensure that any Key Subcontractor allows, any Auditor access to the Supplier's or Key Subcontractor's premises and/or systems (including IT systems), as relevant, to Audit everything to do with this Contract and/or to obtain any information required in relation to any investigation by Ofqual.

9.3 The Supplier must provide, and must ensure that any Key Subcontractor provides, information to the Auditor and reasonable co-operation at the Auditor's request to enable any Audit to be undertaken.

9.4 The Supplier must create and maintain throughout the Term a full and accurate version control log recording all TQ Changes made during the Term.

9.5 The Supplier shall maintain and shall promptly, following a written request by the Authority, provide to the Authority, the following:

9.5.1 the Supplier's detailed and up to date cost model for the provision of the Services under this Contract including a future projection for the remaining Term;

9.5.2 details of the income received by the Supplier through the provision of the Services during the Term to date, including a breakdown by service and customer and a future projection for the remaining Term; and

9.5.3 the Supplier's calculation of the overall level of profit it has achieved during the Term to date through the Services provided under this Contract.

10 Staff Transfer

10.1 The Parties agree that:

10.1.1 where the commencement of the provision of the Services or any part of the Services results in one or more Relevant Transfers, Schedule 21 (Staff Transfer) shall apply; and

10.1.2 Schedule 12 (Exit Management) shall apply on the expiry or termination of the Services or any part of the Services.

11 Supplier Staff and Subcontracting

Supplier Staff

11.1 The Supplier Staff involved in the performance of this Contract must:

11.1.1 be appropriately trained and qualified; and

11.1.2 be vetted using Good Industry Practice and, in the case of Supplier Staff referred to in paragraph 2.2 of Schedule 7 (*Staff (including Key Personnel*)), in accordance with paragraph 4.2 of Schedule 7 (*Staff (including Key Personnel*)).

11.2 If any default, acts, omissions, negligence and/or statements of any of the Supplier Staff involved in the performance of this Contract result in a Default, the Supplier is liable to the Authority for that Default.

11.3 Where the Authority decides (on reasonable grounds) that one of the Supplier's Staff is not suitable to work on this Contract, the Supplier must, subject to clause 11.1, promptly replace them with a suitably qualified alternative.

11.4 If requested by the Authority, the Supplier must replace any person whose acts or omissions have caused the Supplier to breach clause 31 (*Preventing fraud, bribery and corruption*).

Subcontracting

11.5 The Supplier shall comply with the provisions of Schedule 8 (*Supply Chain (including approved Subcontractors)*) in respect of the appointment (including any proposed appointment) and/or management of any Subcontractor (including any Key Subcontractor).

11.6 Sub-contracting any part of this Contract shall not relieve the Supplier of any obligation or duty attributable to the Supplier under this Contract.

12 Rights and protection

12.1 The Supplier warrants and represents that:

12.1.1 it has full capacity and authority to enter into and to perform this Contract;

12.1.2 this Contract is executed by its authorised representative;

12.1.3 it is a legally valid and existing organisation incorporated in the place it was formed;

12.1.4 there are no known legal or regulatory actions or investigations before any court, administrative body or arbitration tribunal pending or threatened against it or its Affiliates that might affect its ability to perform this Contract;

12.1.5 it maintains all necessary rights, authorisations, licences and consents to perform its obligations under this Contract;

12.1.6 it does not have any contractual obligations which are likely to have a material adverse effect on its ability to perform this Contract;

12.1.7 it is not subject to an Insolvency Event;

12.1.8 all statements made, and documents submitted, as part of the procurement of the Services (including in the Supplier's Response) are true and accurate; and

12.1.9 it has notified the Authority in writing of any circumstances it is aware of that may result in the termination grounds under section 78(2) of the Procurement Act 2023 applying to this Contract. If, at any point during the Term, any of the termination grounds under section 78(2) of the Procurement Act 2023 arise, the Supplier shall notify the Authority in writing of such fact within two (2) Working Days of its occurrence.

12.2 The warranties and representations in clause 12.1 are repeated each time the Supplier provides the Services and/or supplies any Products under this Contract.

12.3 The Supplier indemnifies the Authority in full against all Losses suffered or incurred by the Authority arising out of or in connection with third party claims that result from the provision of the Services including the supply of the Products.

12.4 All claims indemnified under this Contract (including for the avoidance of doubt any indemnified IPR Claim) must use the process set out in clause 30 (*Dealing with claims*).

12.5 The Authority can, even if it has made a claim in respect of the breach, still terminate this Contract for breach of any warranty or indemnity where it is entitled to do so.

12.6 If the Supplier becomes aware of a representation or warranty that becomes untrue or misleading, it must immediately notify the Authority.

13 Intellectual Property Rights

Vesting, ownership, and licences of rights in TQ materials

13.1 The Supplier agrees to deliver such materials, and to assign or licence all IPR in such materials, as it creates, identifies for use, or uses as part of or for the Operation of the TQ to which the Authority and/or a Replacement Supplier with Relevant Competence would reasonably require access:

13.1.1 for the Authority to carry out its activities in relation to the T Level and TQ, including the approval, oversight and maintaining the integrity of the T Level and TQ;

13.1.2 for the transfer of the Operation of the TQ to a Replacement Supplier; and

13.1.3 for the Replacement Supplier to Operate (including maintaining the integrity of, modifying and developing) the TQ, in a seamless, Transparent manner; and

13.1.4 to compete openly and effectively any future competition or tender for the Operation of the TQ or a Replacement TQ.

13.2 Without limiting the generality of clause 13.1:

13.2.1 the Supplier agrees to assign to the Authority all IPR in the Key Materials (including in Products) in accordance with the TQ Assignment and Licence;

13.2.2 the Supplier agrees to licence the Authority, with the right to sublicense, all IPR in the Ancillary Materials, in accordance with the TQ Assignment and Licence; and

13.2.3 in respect of any IPR in Key Materials, to the extent that the same are not at the relevant time vested absolutely in the Authority, the Supplier agrees to license the Authority, with the right to sublicense, such IPR in Key Materials, in accordance with the TQ Assignment and Licence.

13.3 Except as set out above or otherwise expressly provided in this Contract:

13.3.1 the Authority shall not by virtue of this Contract acquire title to or rights in any Background IPR owned by the Supplier or any third party; and

13.3.2 the Supplier shall not by virtue of this Contract acquire title to or rights in any Background IPR owned by the Authority or licensed by any third party to the Authority.

13.4 Without prejudice to the other provisions of this Contract, the assignments and licences referred to in clause 13.2 shall be subject to the terms of the TQ Assignment and Licence (during and after the Term), including the warranties and representations set out in the TQ Assignment and Licence. The Authority and the Supplier will enter into the TQ Assignment and Licence in the form set out in Schedule 14 (*Form of Assignment and Licence*) on the Effective Date.

Rights granted to the Supplier

13.5 The Authority hereby grants to the Supplier a non-exclusive worldwide, royalty free licence with the right to sublicense, subject to, and in accordance with, the terms of this Contract, to use:

13.5.1 the Former Supplier's TQ Specification and, if relevant, the Outline Content;

13.5.2 the DfE Data; and

13.5.3 any Authority Background IPR in other materials specifically identified for use in the provision of the Services in accordance with this sub-clause, during the Term, solely in relation to the provision of the Services.

13.6 The Authority hereby grants to the Supplier, in so far as any relevant Intellectual Property Rights have been assigned to the Authority or are otherwise at the time vested in the Authority in accordance with clause 13.2 a worldwide, royalty free licence, with the right to sublicense, to use and exploit the IPR in the Key Materials during the Term in relation to the TQ subject to, and in accordance with, the relevant terms of this Contract.

13.7 Subject to clause 13.8, the licence to the Supplier under clause 13.6 shall be exclusive during the Term solely in respect of use of the Key Materials for the provision of the Services in respect of the Exclusive Cohorts.

Rights retained by the Authority for its activities related to the provision of the Services

13.8 The Authority will retain:

13.8.1 (for the avoidance of doubt) the non-exclusive right to use the Key Materials in its administration, approval and oversight of the TQ and other T Level technical education qualifications and to make the same available to others (such as Ofqual) to do the same; and

13.8.2 the right to use the Key Materials, and for any Future Supplier or potential Future Supplier to use the Key Materials:

(i) for competing or tendering for the delivery and Operation of the TQ and/or any Replacement TQ, where such competition or tender is for such delivery and Operation during any Transition Period and/or following expiry or termination of this Contract (ie the End Date); and

(ii) to deliver and Operate the TQ and/or any Replacement TQ, during any Transition Period; and

13.8.3 the right to sub-license others to exercise the rights set out in this clause 13.8.

Confirmation of rights, marking and branding of Materials

13.9 The Supplier shall, on any copy of any materials in which copyright belongs to the Authority, prominently mark such material with a notice saying: “Copyright in this [DOCUMENT/section of DOCUMENT] belongs to, and is used under licence from, the Department for Education [DATE]” or such other notice as the Authority may reasonably require by notice to the Supplier from time to time. Without prejudice to any rights granted to the Authority under this Contract, in the case of each Deliverable the Supplier shall deliver a certificate in the form annexed to the TQ Assignment and Licence confirming that ownership in the IPR in that Deliverable is vested in the Authority, or where it asserts that IPR in the Deliverable or certain parts of it do not vest in the Authority, identifying specifically those parts and the scope of rights it asserts the Supplier has in respect of the same.

13.10 The Supplier may use its name, logos, trade marks and/or other signs which refer to the Supplier on Key Materials and Ancillary Materials and other materials used in the Operation of the TQ or to promote the TQ which are of the type set out in the T Level Branding Guidelines, provided that any such use shall be strictly as set out in the T Level Branding Guidelines. Without prejudice to the last sentence, the Supplier shall, on notice from the Authority, provide representative samples of all such use, and, if the notice so requests, provide such samples a reasonable period in advance of any proposed such use together with a period (not being less than 7 Working Days) for comment. The Authority may notify the Supplier within such period of any comments, including any requirements it has in respect of such use, and, the Supplier shall take reasonable account of any such comments and comply with any reasonable requirements of the Authority so notified.

13.11 The Supplier shall not use its name, logos, trade marks and/or other signs which refer to the Supplier, in a trade mark manner or as any designation of origin, on any material referred to in clause 13.10 or otherwise in connection with its Operation of T Levels or T Level technical education qualifications (including the TQ), except as provided in clause 13.10 or otherwise with the specific Approval of the Authority; and in any event any use of its name, logos, trade marks and/or other signs which refer to the Supplier in connection with the T Level or T Level technical education qualifications (including the TQ) shall not be such as to make, suggest or imply any connection between the Authority or any T Levels or any T Level technical education qualifications and the Supplier, or endorsement by the Authority or the Department, other than as arises

under this Contract or any other contract for the supply of T Level technical education qualifications.

13.12 The Supplier shall:

13.12.1 apply to all Key Materials and Ancillary Materials provided to any third party, the Authority Mark in such manner as is reasonably prescribed from time to time in writing by the Authority; and

13.12.2 use in respect of the TQ, including, unless otherwise agreed with the Authority, on all Key Materials and Ancillary Materials, such descriptive name (for example in the form: "[technical qualification] in Construction") as is determined by the Authority or proposed by the Supplier and agreed by the Authority, provided that such use shall at all times be in strict accordance with the other provisions of this Contract, the T Level Trade Mark Licence, and any style guides or other instructions issued from time to time by the Authority.

Supplier's operation of other qualifications

13.13 The Supplier shall not, within or outside England, offer or promote any qualification other than the TQ as:

13.13.1 being the TQ (or any other technical qualification forming part of a T Level) or T Level (or part of a T Level);

13.13.2 being identical in terms of content and assessment requirements to the TQ (or any other technical qualification forming part of a T Level) or T Level and/or including identical components to the TQ (or any other technical qualification forming part of a T Level) or T Level; or

13.13.3 demonstrating the same level of occupational competence as the TQ (or any other technical qualification forming part of a T Level) or T Level, provided always that nothing in this Contract shall prevent the Supplier from offering or promoting the technical qualification element of a T Level under a separate contract with the Authority in connection with the making available of that technical qualification.

13.14 The Supplier may only re-use the whole of the TQ in an un-amended or materially un-amended form, other than as part of the Services during the Term, as follows:

13.14.1 in the Operation of qualifications for any of the Devolved Administrations, with the specific Approval of the Authority;

13.14.2 in the Operation of qualifications in England intended for and only marketed to students who are not in the category known as “16 to 19 year old”, with the specific Approval of the Authority; and

13.14.3 in the Operation of qualifications outside the UK, save in any jurisdictions the Authority excludes by notice to the Supplier, provided in each case that the name “T Level” is not used in the qualification or any marketing or promotion of the qualification, and that it is at all times clear and made clear to students and other third parties that the qualification does not form and cannot be used as any part of a T Level.

13.15 Subject to clauses 13.13 and 13.14, nothing in this Contract or the TQ Assignment and Licence shall restrict or prevent the Supplier from continuing to offer and update its existing qualifications (including technical qualifications), from offering new technical qualifications, or from using elements of the Key Materials in the operation of qualifications other than the TQ.

Dealing with intellectual property claims

13.16 If there is an IPR Claim, the Supplier indemnifies the Authority against all Losses suffered or incurred by the Authority as a result.

13.17 Where a Party acquires ownership of IPR incorrectly under this Contract it must do everything reasonably necessary to complete a transfer in writing assigning the IPR to the other Party on request and at its own cost.

13.18 Clause 13.16 shall not apply to the extent that the IPR Claim is caused by the Authority’s use of the relevant IPR in breach of the terms of this Contract.

13.19 In the event that any Third Party IPR is included in the Key Materials, Ancillary Materials, or other Deliverables under this Contract, the Supplier shall ensure that it has or acquires sufficient rights to any such Third Party IPR to enable it to enter into any applicable assignments and to grant any applicable licences under this Contract.

Portability of the TQ

13.20 The Supplier shall, where possible, ensure that its design and development of the TQ enables the transfer of the materials described in clause 13.1 to a Future Supplier without requiring use by such Future Supplier of any underlying proprietary system or platform which does not form part of the Key Materials or Ancillary Materials.

14 What may happen if there are issues with your provision of the Services

14.1 The Supplier must notify the Authority promptly in writing if:

14.1.1 it becomes aware of any problem or complaint from any individual or organisation in relation to the making available and/or operation of the TQ;

14.1.2 it makes any changes to its management, governance, organisational and/or operational structure or capacity from that which is set out in the Supplier's Tender which shall or may be material to the provision of the Services;

14.1.3 it undergoes or proposes to undergo (or, without prejudice to clause 15.9 (*When Sub-Contracts can be ended*) becomes aware that a Subcontractor has undergone or proposes to undergo) a change of Control;

14.1.4 there is a material adverse change in the financial circumstances of the Supplier, or the Supplier has (or anticipates that it may have) insufficient funding to adequately resource its obligations under this Contract;

14.1.5 it becomes aware of any circumstances relating to the Supplier or any Subcontractor which shall or may bring into disrepute and/or diminish the trust that the public places in the Authority, the Department or Skills England and/or the T Levels Programme (including any Conflict of Interest (as contemplated by clause 36 (*Conflict of interest*)) and/or any child protection and/or data handling issues and/or incidents);

14.1.6 it becomes aware of any issue which shall or may have an adverse impact on Students studying for the TQ;

14.1.7 it is required, pursuant to the Conditions of Recognition, to notify Ofqual of any event that has occurred (or is likely to occur) which it has cause to believe could have an "Adverse Effect" (as defined in the Conditions of Recognition);

14.1.8 any of the circumstances in clause 15.9 (*Ending or extending this Contract*) occur; or

14.1.9 a Critical Service Failure occurs.

14.2 If:

14.2.1 the Supplier has failed to make the Submission for the relevant Interim Milestone on or prior to the Submission Date for that relevant Interim Milestone;

14.2.2 the Authority reasonably believes that:

(i) the Supplier is not likely to achieve DfE Approval by the Final Approval Milestone Date;

(ii) the Authority is likely to need to withdraw DfE Approval;

(iii) Ofqual is likely to need to withdraw Ofqual Recognition;

14.2.3 the Authority has obtained information giving rise to reasonable concerns about the ability of the Supplier to deliver the Services and the Authority has provided such information to the Supplier and given the Supplier a reasonable opportunity (in the circumstances) to respond to such information and any such response fails to address such concerns to the satisfaction of the Authority;

14.2.4 the Supplier fails, in the opinion of Ofqual, to comply with any Condition of Recognition;

14.2.5 the Supplier is under investigation and/or subject to regulatory enforcement by Ofqual or has had any direction issued by Ofqual in respect of it;

14.2.6 the Supplier fails to comply with and/or implement (as the case may be) the whole or any part of the Implementation and Delivery Plan in any material respect;

14.2.7 the Supplier fails to deliver the Services in accordance with the Resource Plan in any material respect;

14.2.8 the circumstances referred to in paragraph 2.3.2 of Schedule 15 (*Monitoring of Performance*) occur;

14.2.9 a Supplier Termination Event has occurred; and/or

14.2.10 any act or omission of the Supplier in relation to the TQ in breach of this Contract occurs which shall or may have a material adverse impact on Students and/or the TQ including any such act or omission which:

(i) gives rise to prejudice to Students or potential Students; or

(ii) adversely affects:

(A) the ability of the Supplier to undertake the development, delivery or award of the TQ in accordance with its Conditions of Recognition;

(B) the standards of the TQ which the Supplier makes available or proposes to make available; or

(C) public confidence in the TQ,

the Authority may issue written notification of Designated Action to the Supplier, following which the Supplier shall comply with the Designated Action in accordance with any timeframe stated in such notification. In the event that, for any reason, the Supplier is unable to comply with the Designated Action notification, the Supplier shall promptly notify the Authority and shall explain the reason why it is unable to so comply.

14.3 In the event of a Critical Service Failure, in addition to the rights of the Authority under clause 14.2 (*What may happen if there are issues with your provision of the Services*) and 15.3 (*Ending or extending this Contract*), the Authority may by serving written notice on the Supplier:

14.3.1 suspend and/or restrict any elements (in full or part) of the Services for the remainder of the Term, including a permanent prohibition or restriction on the Supplier from providing the Services (including making the TQ and/or any Products available to Approved Providers):

(i) to Cohorts (including any Exclusive Cohort) in respect of which Students are already registered for the TQ; and/or

(ii) in respect of any further Cohorts (including any Exclusive Cohort);

14.3.2 reduce the Term by one or more periods of 12 months as specified in such notice and accordingly remove one or more Cohorts from the Exclusive Cohorts; and/or

14.3.3 require the Supplier to comply with specified performance improvement conditions in relation to the Services, failing which the Term will reduce by one or more periods of 12 months as specified in such notice and the final Cohort will then be removed from the Exclusive Cohorts.

14.4 Nothing in this Contract (and no action by the Authority) shall be construed so as to limit or restrict the ability of Ofqual to take action under its statutory powers and in the event of any Dispute arising out of or in connection with Ofqual Recognition and/or any Condition of Recognition the provisions of clause 38.7 (*Resolving disputes*) will apply.

14.5 The Supplier shall provide (and shall procure that its Subcontractors provide) all information and cooperation as is required by the Authority to enable the Authority to investigate any alleged breach by the Supplier of its obligations under this Contract.

14.6 The Authority may withdraw DfE Approval by notice in writing to the Supplier in circumstances where the requirements for DfE Approval are no longer met by the Supplier. The Authority shall notify the Supplier in advance in writing of its proposal to withdraw DfE Approval and shall provide a reasonable opportunity for the Supplier to make representations in relation to such proposal, and the Authority shall take such representations into account in determining whether to proceed to withdraw DfE Approval.

15 Ending or extending this Contract

15.1 This Contract ends on the End Date.

Extending this Contract

15.2 The Authority can extend this Contract for an Extension Period by giving the Supplier written notice prior to the start of the Academic Year in which the final Exclusive Cohort commences the TQ.

When the Authority can end this Contract

15.3 If a Supplier Termination Event occurs, the Authority has the right to immediately terminate this Contract by issuing a Termination Notice to the Supplier, unless the Supplier Termination Event occurs as a result of a breach of this Contract by the Authority, but only insofar as the Authority's breach is not itself caused by a breach by the Supplier of the Supplier's obligations under this Contract.

15.4 Nothing in clause 38 (Resolving Disputes) shall prevent or restrict the Authority from exercising its rights under clause 15.3.

What happens if this Contract ends

15.5 Where the Authority terminates this Contract, all of the following apply:

15.5.1 the Supplier shall apply to Ofqual, in accordance with the instructions of the Authority, for its Ofqual Recognition in respect of the TQ to be withdrawn;

15.5.2 the accumulated rights of the Authority are not affected;

15.5.3 the Authority grants to the Supplier a non-exclusive worldwide, royalty free irrevocable licence to use the DfE Data solely to the extent that such DfE Data consists of: (i) information relating to the identities of Providers and persons engaged by them, which it shall be entitled to use for any purpose; and (ii) Student Related Data provided that no individual Student can be identified from such Student Related Data, which it shall be entitled to use for research purposes in order to develop or improve upon any Supplier qualification (including material prepared, and training provided, in support of such qualification);

15.5.4 the Supplier must promptly return (or, where required by the Authority, delete) the DfE Data except where required to retain copies by Law, the Conditions of Recognition, or for the purposes of exercising its rights under the licence granted under clause 15.5.3;

15.5.5 the Supplier must promptly return any of the Authority's property provided to it under this Contract;

15.5.6 the Supplier must at no cost to the Authority reasonably co-operate in the re-procurement and/or handover of the Services (including to a Replacement Supplier);

15.5.7 the Supplier must comply with the relevant provisions of Schedule 12 (*Exit Management*); and

15.5.8 this clause 15.5 and the following clauses survive the termination of this Contract: clauses 9, 12.3, 13, 16, 18, 19, 20, 22, 38 and 39 and any clauses and/or Schedules which are expressly or by implication intended to continue.

15.6 Upon the expiry or early termination of this Contract for whatever reason, the Authority may publish a Contract Termination Notice containing such information as may be required from time to time by the Procurement Regime.

When the Supplier can end this Contract

15.7 The Supplier can terminate this Contract by issuing a Termination Notice if the Authority fails to pay any Charges which have fallen due under this Contract and which are directly payable by the Authority within 30 days of the date of a Reminder Notice issued by the Supplier in respect of such sum.

15.8 If the Supplier terminates this Contract under clause 15.5:

15.8.1 the Authority must promptly pay all outstanding Charges referred to in clause 15.5 to the Supplier; and

15.8.2 clauses 15.5.1 to 15.5.8 shall apply.

When Sub-Contracts can be ended

15.9 At the Authority's request, the Supplier must terminate (or procure the termination of (as the case may be)) any Sub-Contracts in any of the following events:

15.9.1 there is a change of Control of the relevant Subcontractor which is not pre-approved in writing by the Authority and which the Authority believes shall or may have an adverse impact on the Services;

15.9.2 the acts or omissions of the relevant Subcontractor have caused or materially contributed to a right of the Authority to terminate this Contract;

15.9.3 a Supplier Termination Event is caused or contributed to by the relevant Subcontractor or where any analogous events referred to in limbs (b), (d), (e), (f), (g), (h), (j), (l) or (n) of the definition of Supplier Termination Event occurs in respect of the Subcontractor; or

15.9.4 the relevant Subcontractor sub-contracts any of its obligations in relation to the Services in breach of the requirements of this Contract.

16 How much each Party can be held responsible for

16.1 Subject to the following provisions of this clause 16 each Party's total aggregate liability under this Contract (whether in tort, contract or otherwise) for each claim or series of connected claims is no more than £1,000,000.

16.2 No Party is liable to the other for:

16.2.1 any indirect, special, or consequential Loss; or

16.2.2 loss of profits, turnover, savings, business opportunities or damage to goodwill (in each case whether direct or indirect), provided always that, subject to clause 16.1, the Supplier acknowledges that the Authority may, amongst other things, recover from the Supplier the following Losses incurred by the Authority and Skills England, to the extent that they arise as a result of a Default by the Supplier:

(i) any additional operational and/or administrative costs and expenses, including costs relating to time spent by or on behalf of the Authority in dealing with the consequences of the Default;

(ii) any wasted expenditure or charges;

(iii) the additional cost of procuring Replacement Services for the remainder of the Contract Period, which shall include any incremental costs associated with such Replacement Services above those which would have been payable under this Contract;

(iv) any compensation or interest paid to a third party by the Authority; and

(v) any fine or penalty pursuant to Law and any costs in defending any proceedings which result in such fine or penalty.

16.3 The Authority does not give any warranty or undertaking as to the relevance, completeness, accuracy or fitness for purpose of any data information and/or documentation disclosed by or on behalf of the Authority prior to or after the Effective Date and neither the Authority nor any of its employees or agents shall be liable (howsoever arising) for any inaccuracy, omission, unfitness for purpose or inadequacy of any kind whatsoever in any such data information and/or documentation.

16.4 Nothing in this Contract shall operate to exclude or limit the liability of either Party in relation to the following:

16.4.1 its liability for death or personal injury caused by its negligence, or that of its employees, agents or subcontractors;

16.4.2 bribery or fraud or fraudulent misrepresentation by it or its employees; or

16.4.3 any liability that cannot be excluded or limited by Law.

16.5 Each Party must use its reasonable endeavours to mitigate any Losses which it suffers under or in connection with this Contract, including where any such Losses are covered by an indemnity.

16.6 When calculating the Supplier's liability under clause 16.1, Losses covered by Required Insurances will not be taken into consideration.

17 Insurance

17.1 Without prejudice to its obligations to the Authority under this Contract, including its indemnity obligations, the Supplier shall take out and maintain at its own cost, or procure the taking out and maintenance of, the Required Insurances. The Supplier shall ensure that each of the Required Insurances is effective no later than the date on which the relevant risk commences.

17.2 The Required Insurances shall be maintained in accordance with Good Industry Practice and (so far as is reasonably practicable) on terms no less favourable than those generally available to a prudent contractor in respect of risks insured in the international insurance market from time to time.

17.3 The Required Insurances shall be taken out and maintained with insurers who are: (a) of good financial standing; (b) appropriately regulated; and (c) of good repute in the international insurance market.

17.4 The Supplier shall not take any action or fail to take any action or (insofar as is reasonably within its power) permit anything to occur in relation to it which would entitle any insurer to refuse to pay any claim under any of the Required Insurances.

17.5 Where the Supplier has failed to purchase any of the Required Insurances or maintain any of the Required Insurances in full force and effect, the Authority may elect (but shall not be obliged) following written notice to the Supplier to purchase the relevant Required Insurances, and the Authority shall be entitled to recover the reasonable premium and other reasonable costs incurred in connection therewith as a debt due from the Supplier.

17.6 The Supplier shall upon the Effective Date and within 15 Working Days after the renewal or replacement of each of the Required Insurances, provide evidence, in a form satisfactory to the Authority, that the Required Insurances are in full force and effect and meet in full the requirements of this clause 17. Receipt of such evidence by the Authority shall not in itself constitute acceptance by the Authority or relieve the Supplier of any of its liabilities and obligations under this Contract.

17.7 The Supplier shall ensure that the public and products liability policy forming part of the Required Insurances shall contain an indemnity to principals clause under which the Authority shall be indemnified in respect of claims made against the Authority in respect of death or bodily injury or third-party property damage arising out of or in connection with the Services and for which the Supplier is legally liable.

18 Data protection and information

18.1 Each Party shall comply with the Data Protection Legislation.

18.2 The Supplier must ensure that Personal Data is Processed in accordance with Schedule 9 (*Data Handling and Security Management*).

18.3 The Supplier must not remove any ownership or security notices in or relating to the DfE Data.

18.4 The Supplier must make accessible back-ups of all DfE Data, stored in an agreed off-site location. The Supplier must send the Authority copies every six Months of the Ancillary Materials and the Key Materials (in each case to the extent that these have not already been provided to the Authority), and any further information falling within

the definition of DfE Data as may be requested by the Authority in writing from time to time.

18.5 The Supplier must ensure that any Supplier system holding any DfE Data, including back-up data, is a secure system that complies with the Security Policy and the relevant provisions of Schedule 9 (*Data Handling and Security Management*).

18.6 If at any time the Supplier suspects or has reason to believe that the DfE Data provided or generated under this Contract is corrupted, lost or sufficiently degraded, then the Supplier must notify the Authority and immediately suggest remedial action.

18.7 If the DfE Data is corrupted, lost or sufficiently degraded so as to be unusable the Authority may either or both:

18.7.1 tell the Supplier to restore or get restored DfE Data as soon as practical but no later than 5 Working Days from the date that the Authority receives notice, or the Supplier finds out about the issue, whichever is earlier; and/or

18.7.2 restore the DfE Data itself or using a third party.

18.8 The Supplier must pay each Party's reasonable costs of complying with clause 18.7 unless the Authority is at fault.

18.9 The Supplier:

18.9.1 must provide the Authority with all DfE Data in an agreed open format within 10 Working Days of a written request;

18.9.2 must have documented processes to guarantee prompt availability of DfE Data if the Supplier stops trading;

18.9.3 must securely destroy all Storage Media that has held DfE Data at the end of life of that media using Good Industry Practice;

18.9.4 must securely erase all DfE Data and any copies it holds when asked to do so by the Authority unless required by Law to retain it; and

18.9.5 indemnifies the Authority against any and all Losses suffered or incurred by the Authority if the Supplier and/or any Key Subcontractor breaches this clause 18 and/or any Data Protection Legislation.

19 What must be kept confidential

Confidential Information

19.1 Each Party must, subject to the following provisions of this clause 19;

19.1.1 keep all Confidential Information it receives confidential and secure;

19.1.2 not disclose, use or exploit the Confidential Information disclosed by the Disclosing Party without the Disclosing Party's prior written consent, except for the purposes anticipated under this Contract; and

19.1.3 immediately notify the Disclosing Party if it suspects unauthorised access, copying, use or disclosure of the Confidential Information.

19.2 Notwithstanding clause 19.1, a Party may disclose Confidential Information which it receives from the Disclosing Party in any of the following instances:

19.2.1 where disclosure is required by applicable Law or by a court with the required jurisdiction, if the Recipient Party (to the extent that it is permitted to do so by such applicable Law or by such court) notifies the Disclosing Party in advance of disclosure of the full circumstances, the affected Confidential Information and extent of the disclosure;

19.2.2 if the Recipient Party already had the information without obligation of confidentiality before it was disclosed to it by the Disclosing Party;

19.2.3 if the information was given to it by a third party without obligation of confidentiality;

19.2.4 if the information was in the public domain at the time of the disclosure;

19.2.5 if the information was independently developed without access to the Confidential Information of the Disclosing Party;

19.2.6 to its auditors or for the purposes of regulatory requirements;

19.2.7 on a confidential basis, to its professional advisers on a need-to-know basis;

19.2.8 to the Serious Fraud Office where the Recipient Party has reasonable grounds to believe that the Disclosing Party is involved in activity that may be a criminal offence under the Bribery Act 2010; and/or

19.2.9 where disclosure is permitted in accordance with Schedule 4 (*Co-operation*).

19.3 The Supplier may disclose Confidential Information on a confidential basis to Supplier Staff on a need-to-know basis to allow the Supplier to meet its obligations under this Contract. The Supplier must ensure that the Supplier Staff enter into a direct confidentiality agreement with the Authority at the Authority's request.

19.4 The Authority may disclose Confidential Information in any of the following cases:

19.4.1 on a confidential basis to the employees, agents, consultants and contractors of the Authority;

19.4.2 on a confidential basis to any Crown Body, any successor body to a Crown Body or any company that the Authority transfers or proposes to transfer all or any part of its business to;

19.4.3 where permitted by the Apprenticeships, Skills, Children and Learning Act 2009, (including to Skills England or Ofqual and as contemplated by clause 5.14 (*Developing the TQ and achieving DfE Approval*);

19.4.4 if the Authority (acting reasonably) considers disclosure necessary or appropriate to carry out its public functions;

19.4.5 where requested by Parliament;

19.4.6 under clauses 4.10 (*Pricing and payments*) and 20 (*When information can be shared*); or

19.4.7 save for Exit Information, where the information was generated as part of the provision of the Services.

19.5 For the purposes of clauses 19.2 to 19.4 references to disclosure on a confidential basis means disclosure under a confidentiality agreement or arrangement including terms as strict as those required in this clause 19.

Student Related Data

19.6 The Supplier must:

19.6.1 keep all Student Related Data confidential and secure;

19.6.2 immediately notify the Authority if it suspects unauthorised access, copying, use or disclosure of the Student Related Data.

19.7 The Supplier shall not store, copy, disclose, or use the Student Related Data except as necessary for the performance by the Supplier of its obligations under this Contract or as otherwise expressly authorised in writing by the Authority.

Transparency Information and other disclosures

19.8 Transparency Information and any information which is exempt from disclosure by clause 20 (*When information can be shared*) is not Confidential Information.

19.9 The Supplier must not make any press announcement or publicise this Contract or the output of the Services (including the Student Related Data) without the prior written consent of the Authority and must take all reasonable steps to ensure that Supplier Staff do not either.

20 <u>When information can be shared</u>

20.1 The Supplier acknowledges that:

20.1.1 the Transparency Reports; and

20.1.2 the content of this Contract, including any changes to this Contract agreed during the Term, except for (i) any information which is exempt from disclosure in accordance with the provisions of the FOIA, which shall be determined by the Authority; and (ii) Commercially Sensitive Information, (together the "**Transparency Information**") is not Confidential Information.

20.2 The Supplier must tell the Authority within 48 hours if it receives a Request For Information.

20.3 Within the timescales required by the Authority, the Supplier must give the Authority full co-operation and information needed so the Authority can:

20.3.1 publish the Transparency Information; and

20.3.2 comply with any Request for Information.

20.4 The Supplier acknowledges that the Authority may be required under the FOIA and EIRs to disclose information (including Confidential Information and Commercially Sensitive

Information) without consulting or obtaining consent from the Supplier. However, to the extent that it is permitted to do so (in accordance with the Secretary of State's section 45 Code of Practice on the Discharge of the Functions of Public Authorities under Part 1 of the FOIA), the Authority shall, in relation to any Request for Information relating to Confidential Information or Commercially Sensitive Information of the Supplier:

20.4.1 notify the Supplier of such Request for Information as soon as is reasonably practicable; and

20.4.2 allow the Supplier to make representations in relation to any exemptions the Supplier considers may apply to the disclosure of its information under the Request for Information and take such representations into account when making its decision of what it will disclose.

20.5 Notwithstanding any other provision in this Contract, the Authority shall be responsible for determining in its absolute discretion whether any Commercially Sensitive Information and/or any other information is exempt from disclosure in accordance with the FOIA and/or the EIRs.

21 Invalid parts of this Contract

21.1 If any part of this Contract is held to be void or otherwise unenforceable by any court of competent jurisdiction, such part shall to the extent necessary to ensure that the remaining provisions of this Contract are not void or unenforceable be deemed to be deleted and the validity and/or enforceability of the remaining provisions of this Contract shall not be affected.

22 No other terms apply

22.1 The provisions incorporated into this Contract are the entire agreement between the Parties. This Contract replaces all previous statements and agreements whether written or oral. No other provisions apply.

23 Other people's rights in this Contract

23.1 No third parties shall be entitled to enforce any term of this Contract.

24 Circumstances beyond either Party's control

24.1 Any Party affected by a Force Majeure Event is excused from performing its obligations under this Contract while the inability to perform continues, if it both:

24.1.1 provides a Force Majeure Notice to the other Party; and

24.1.2 uses all reasonable measures to reduce the impact of the Force Majeure Event.

24.2 The Authority can terminate this Contract if the provision of the Services is materially affected by a Force Majeure Event which lasts for 90 days continuously.

24.3 Where the Authority terminates under clause 24.2:

24.3.1 each Party must cover its own Losses; and

24.3.2 subject to clause 24.3.1, clause 15.4 applies.

24.4 The Supplier may not rely on clause 24.1 to the extent that the inability to perform its obligations arises directly or indirectly out of a failure by the Supplier to comply with its Business Continuity Plan.

25 Relationships created by this Contract

25.1 This Contract does not create a partnership, joint venture or employment relationship. The Supplier must represent itself accordingly and ensure the Supplier Staff do so.

26 Giving up contract rights

26.1 A partial or full waiver or relaxation of the terms of this Contract by one Party is only valid if it is stated to be a waiver in writing to the other Party.

27 Transferring responsibilities

27.1 The Supplier must not assign, transfer or otherwise dispose of its rights, obligations and/or liabilities under the whole or any part of this Contract without Approval.

27.2 The Authority can assign, novate or transfer this Contract or any part of it to any Crown Body, public sector body or private sector body which performs the functions of the Authority.

27.3 The Supplier must enter into a novation agreement in the form that the Authority specifies where the Authority wishes to exercise its rights under clause 27.2.

27.4 The Supplier can terminate this Contract novated under clause 27.2 to a private sector body where an Insolvency Event occurs in respect of that private sector body.

27.5 The Supplier remains responsible for all acts and omissions of the Supplier Staff as if they were its own.

28 Changing this Contract

28.1 If any change is required which is an Inclusive TQ Change, clause 8 (*TQ Changes*) shall apply in relation to such change, and this clause 28 shall not apply to any Inclusive TQ Change.

28.2 Either Party can request a Variation to this Contract, including the addition or removal of one or more Occupational Specialist Components.

28.3 The Supplier cannot unreasonably withhold or delay their consent to a Variation to this Contract.

28.4 The Supplier must provide an Impact Assessment either:

28.4.1 with the Variation Form, where the Supplier requests the Variation; or

28.4.2 within the time limits included in a Variation Form where the Authority requests the Variation.

28.5 If the Variation cannot be agreed or resolved by the Parties, the Authority can either:

28.5.1 agree that this Contract continues without the Variation; or

28.5.2 treat such failure as a Dispute which shall be addressed through the Dispute Resolution Procedure.

28.6 A Variation of this Contract is only effective if agreed in writing and signed by both Parties.

28.7 If there is a General Change in Law, the Supplier must bear the risk of the change and is not entitled to ask for an increase to the Charges and/or the Fees in respect of that change.

28.8 If there is a Specific Change in Law or one is likely to happen during the Contract Period, the Supplier must give the Authority notice of the likely effects of the Specific Change in Law as soon as reasonably practical. The Supplier must also say if it thinks any Variation is needed either to the Services, the Products and/or this Contract and provide evidence:

28.8.1 that the Supplier has kept costs as low as possible and/or maximised any cost savings (as the case may be) including any Subcontractor costs; and

28.8.2 of how it has affected or will affect the Supplier's costs and/or those of any Subcontractor.

28.9 Any Variation because of a Specific Change in Law must be implemented using clauses 28.1 to 28.6.

28.10 If another awarding organisation has a contract with the Authority for the provision of services similar to the Services to deliver a different technical qualification as part of the T Levels Programme and that other awarding organisation suffers a Supplier Termination Event following which its contract with the Authority is terminated or the relevant contract is otherwise lawfully terminated, the Supplier agrees that the Authority shall have the option to request that the Supplier takes over the delivery of that different technical qualification and any related services as a Variation, which will be implemented using clauses 28.1 to 28.6. The Charges and Fees relating to such a Variation shall be agreed between the Parties as part of the Impact Assessment for the relevant Variation, each Party acting reasonably and promptly, prior to the Supplier commencing work on the Variation. The relevant Charges and Fees shall:

28.10.1 be a reasonable cost for implementing the Variation in the circumstances;

28.10.2 take into account the charges and fees that the other awarding organisation was charging in relation to that different technical qualification prior to suffering the Supplier Termination Event; and

28.10.3 take into account and be calculated using:

(i) for personnel related costs and other relevant charges which are set out in the Rate Card, the applicable Rate Card rates; and

(ii) reasonable charges for any non-personnel related costs which are not included in the Rate Card and which will be incurred by the Supplier to implement the Variation; and

(iii) the same basis and the same logic used by the Supplier to determine the relevant costs, Charges and Fees for the Services.

28.11 Before, during or after any change to this Contract is made, the Authority may publish a contract change notice within the meaning of, and in accordance with the obligations set out in, the Procurement Regime.

29 How to communicate about this Contract

29.1 Any notices under this Contract must be in writing and served by e-mail unless it is not practicable to do so. For the avoidance of doubt, this clause 29.1 does not apply to a Variation, which must be implemented in accordance with clauses 28.2 to 28.6.

29.2 Subject to clause 29.1, the following table sets out the method by which notices may be served under this Contract and the respective deemed time and proof of service:

Manner of Delivery	Deemed time of service	Proof of service
Email	9.00am on the first Working Day after sending	Dispatched as a pdf attachment to an e-mail to the correct e-mail address without any error message.
Personal delivery	On delivery, provided delivery is between 9.00am and 5.00pm on a Working Day. Otherwise, delivery will occur at 9.00am on the next Working Day.	Properly addressed and delivered as evidenced by signature of a delivery receipt
Prepaid, Royal Mail Signed For™ 1st Class or other prepaid, next Working Day service providing proof of delivery.	At the time recorded by the delivery service, provided that delivery is between 9.00am and 5.00pm on a Working Day. Otherwise, delivery will occur at 9.00am on the same Working Day (if delivery before 9.00am) or on the next Working Day (if after 5.00pm).	Properly addressed prepaid and delivered as evidenced by signature of a delivery receipt

29.3 [redacted]

29.4 Subject to clause 29.1, notices to the Supplier must be sent to the Supplier Authorised Representative's email address, (or address, where e-mail is not practicable) set out in Schedule 20 (Authorised Representatives).

29.5 This clause 29 does not apply to the service of legal proceedings or any documents in any legal action, arbitration or dispute resolution.

30 Dealing with claims

30.1 If a Beneficiary is notified of or otherwise becomes aware of a Claim then it must notify the Indemnifier as soon as reasonably practical and no later than 10 Working Days after such notification or date of first awareness.

30.2 At the Indemnifier's cost the Beneficiary must both:

30.2.1 allow the Indemnifier to conduct all negotiations and proceedings to do with a Claim; and

30.2.2 give the Indemnifier reasonable assistance with the Claim if requested.

30.3 The Beneficiary must not make admissions about the Claim or enter into any agreement or compromise in relation to the Claim without the prior written consent of the Indemnifier which cannot be unreasonably withheld or delayed.

30.4 The Indemnifier must consider and defend the Claim diligently using competent legal advisors and in a way that does not damage the Beneficiary's reputation (or, in the case of the Authority as a Beneficiary, the reputation of the Authority, and Skills England or the wider T Levels Programme).

30.5 The Indemnifier must not settle or compromise any Claim without the Beneficiary's prior written consent which it must not unreasonably withhold or delay.

30.6 Each Beneficiary must take all reasonable steps to minimise and mitigate any losses that it suffers because of the Claim.

30.7 If the Indemnifier pays the Beneficiary money under an indemnity and the Beneficiary later recovers money which is directly related to the relevant Claim, the Beneficiary must immediately repay the Indemnifier the lesser of either:

30.7.1 the sum recovered minus any legitimate amount spent by the Beneficiary when recovering this money; or

30.7.2 the amount the Indemnifier paid the Beneficiary for the Claim.

31 Preventing fraud, bribery and corruption

31.1 The Supplier must not during the Term:

31.1.1 commit a Prohibited Act or any other criminal offence in Part 1 of Schedule 6, and/or any mandatory exclusion ground under Part 2 of Schedule 6 of the Procurement Act 2023 and any associated Regulations; and/or

31.1.2 do or allow anything which would cause the Authority, including any of its employees, consultants, contractors, subcontractors or agents to breach any of the Relevant Requirements or incur any liability under them.

31.2 The Supplier must during the Term:

31.2.1 create, maintain and enforce adequate policies and procedures to ensure it complies with the Relevant Requirements to prevent a Prohibited Act and require its Subcontractors to do the same;

31.2.2 keep full records to show it has complied with its obligations under this clause 31 and give copies to the Authority on request; and

31.2.3 if required by the Authority, within 20 Working Days of the Effective Date, and then annually, certify in writing to the Authority, that it has complied with this clause 31, including compliance of Supplier Staff, and provide reasonable supporting evidence of this on request, including its policies and procedures.

31.3 The Supplier must immediately notify the Authority if it becomes aware of any breach of clauses 31.1 or 31.2, or has any reason to think that it, or any of the Supplier Staff, has either:

31.3.1 been investigated or prosecuted for an alleged Prohibited Act;

31.3.2 been debarred, suspended, proposed for suspension or debarment, or is otherwise ineligible to take part in procurement programmes or contracts because of a Prohibited Act by any Crown Body;

31.3.3 received a request or demand for any undue financial or other advantage of any kind related to this Contract; or

31.3.4 suspected that any person or Party directly or indirectly related to this Contract has committed or attempted to commit a Prohibited Act.

31.4 If the Supplier notifies the Authority as required by clause 31.3, the Supplier must respond promptly to the Authority's further enquiries, co-operate with any investigation and allow the Audit of any relevant books, records and documentation.

31.5 In any notice the Supplier gives under clause 31.4 it must specify the:

31.5.1 Prohibited Act;

31.5.2 identity of the party who it thinks has committed the Prohibited Act; and

31.5.3 action it has decided to take.

32 <u>Equality, diversity, human rights and modern slavery</u>

32.1 The Supplier shall:

32.1.1 perform its obligations under this Contract (including those in relation to the Services), in accordance with:

(i) all applicable equality Law (whether in relation to race, sex, gender reassignment, religion or belief, disability, sexual orientation, pregnancy, maternity, age or otherwise);

(ii) the Authority's equality and diversity policy as provided to the Supplier from time to time; and

(iii) any other requirements and instructions which the Authority reasonably imposes in connection with any equality obligations imposed on the Authority at any time under applicable equality Law; and

32.1.2 take all necessary steps, and inform the Authority of the steps taken, to prevent unlawful discrimination designated as such by any court or tribunal, or the Equality and Human Rights Commission or (any successor organisation).

32.2 The Supplier:

32.2.1 shall not use, nor allow its Subcontractors to use forced, bonded or involuntary prison labour;

32.2.2 shall not require any Supplier Staff or the personnel of any sub-contractors to lodge deposits or identity papers with their employer and shall be free to leave their employer after reasonable notice;

32.2.3 warrants and represents that it has not been convicted of any slavery or human trafficking offences anywhere around the world;

32.2.4 warrants that to the best of its knowledge it is not currently under investigation, inquiry or enforcement proceedings in relation to any allegation of slavery or human trafficking offences anywhere around the world;

32.2.5 shall make reasonable enquires to ensure that its officers, employees and sub-contractors have not been convicted of slavery or human trafficking offences anywhere around the world;

32.2.6 shall have and maintain throughout the Term its own policies and procedures to ensure its compliance with the Modern Slavery Act 2015 and include in its contracts with its Subcontractors anti-slavery and human trafficking provisions;

32.2.7 shall implement due diligence procedures to ensure that there is no slavery or human trafficking in any part of its supply chain performing obligations under the Contract;

32.2.8 shall prepare and deliver to the Authority, an annual slavery and human trafficking report (in respect of which a statement under section 54 of the Modern Slavery Act would be sufficient) setting out the steps it has taken to ensure that slavery and human trafficking is not taking place in any of its supply chains or in any part of its business;

32.2.9 shall not use, nor allow its employees or Subcontractors to use physical abuse or discipline, the threat of physical abuse, sexual or other harassment and verbal abuse or other forms of intimidation of its employees or Subcontractors;

32.2.10 shall not use or allow child or slave labour to be used by its Subcontractors; and

32.2.11 shall report the discovery or suspicion of any slavery, trafficking, forced labour, child labour, involuntary prison labour or labour rights abuses by it or

its Subcontractors to the Authority and the Modern Slavery Helpline and relevant national or local law enforcement agencies;

32.3 If the Supplier is in Default under Clauses 32.2.1 to 32.2.11 the Authority may by notice:

(i) require the Supplier to remove from performance of the Contract any Subcontractor, Supplier Staff or other persons associated with it whose acts or omissions have caused the Default; or

(ii) immediately terminate the Contract in accordance with Clause 15.3.

33 Health and safety

33.1 The Supplier must perform its obligations meeting the requirements of:

33.1.1 all applicable Law regarding health and safety;

33.1.2 the Authority's current health and safety policy, as provided to the Supplier, to the extent that Supplier Staff are located at any Authority premises in the course of performing the Services under this Contract.

34 Environment

34.1 The Supplier must ensure that Supplier Staff are aware of and comply with the Environmental Policy.

35 Tax

35.1 The Supplier must not breach any tax or social security obligations and must enter into a binding agreement to pay any late contributions due, including where applicable, any interest or any fines.

35.2 Where the Supplier or any Supplier Staff are liable to be taxed or to pay National Insurance contributions in the UK relating to payment received under this Contract, the Supplier must both:

35.2.1 comply with the Income Tax (Earnings and Pensions) Act 2003 and all other statutes and regulations relating to income tax, the Social Security Contributions and Benefits Act 1992 (including IR35) and National Insurance contributions; and

35.2.2 indemnify the Authority against any Income Tax, National Insurance and social security contributions and any other liability, deduction, contribution, assessment, or claim arising from or made during or after the Term in connection with the provision of the Services by the Supplier or any Supplier Staff.

36 Conflict of interest

36.1 The Supplier must take action to ensure that neither the Supplier nor the Supplier Staff are placed in the position of an actual or potential Conflict of Interest.

36.2 The Supplier must promptly notify and provide details to the Authority if a Conflict of Interest happens or is expected to happen.

36.3 The Authority can terminate this Contract immediately by giving notice in writing to the Supplier or take any steps it thinks are necessary where there is or may be an actual or potential Conflict of Interest.

37 Reporting a breach of this Contract

37.1 As soon as it is aware of it, the Supplier and Supplier Staff must report to the Authority any actual or suspected breach of:

37.1.1 Law; or

37.1.2 clauses 31 to 36 (inclusive).

37.2 The Supplier must not retaliate against any of the Supplier Staff who in good faith report a breach listed in clause 37.1 to the Authority or a Prescribed Person.

38 Resolving disputes

38.1 If there is a Dispute, nominated senior representatives of each Party who have authority to settle the Dispute will, within 28 days of a written request from the other Party, meet in good faith to resolve the Dispute.

38.2 If the Dispute is not resolved at that meeting, the Parties can attempt to settle it by mediation using the Centre for Effective Dispute Resolution ("**CEDR**") Model Mediation Procedure current at the time of the Dispute. If the Parties cannot agree on a mediator, the mediator will be nominated by CEDR. If either Party does not wish to use, or

continue to use mediation, or mediation does not resolve the Dispute, the Dispute must be resolved using clauses 38.3 to 38.5.

38.3 Unless the Authority refers the Dispute to arbitration using clause 38.4, the Parties irrevocably agree that the courts of England and Wales have the exclusive jurisdiction to:

38.3.1 determine the Dispute; and/or

38.3.2 grant interim remedies, or any other provisional or protective relief.

38.4 The Supplier agrees that the Authority has the exclusive right to refer any Dispute to be finally resolved by arbitration under the London Court of International Arbitration Rules current at the time of the Dispute. There will be only one arbitrator. The seat or legal place of the arbitration will be London and the proceedings will be in English.

38.5 The Authority has the right to refer a Dispute to arbitration even if the Supplier has started or has attempted to start court proceedings under clause 38.3 unless the Authority has agreed to the court proceedings or participated in them. Even if court proceedings have started, the Parties must do everything necessary to ensure that the court proceedings are stayed in favour of any arbitration proceedings if they are started under clause 38.4.

38.6 The Supplier cannot suspend the performance of this Contract during any Dispute.

38.7 To the extent that a Dispute relates to whether or not the Supplier has complied with a Condition of Recognition and/or requirement of Ofqual Recognition, the Parties agree that they shall request that Ofqual shall make the final decision as to whether the requirements of that Condition of Recognition and/or Ofqual Recognition have been met and any such decision by Ofqual shall be binding on both Parties.

39 Contract Performance Notices

39.1 Without prejudice to the Authority's rights or obligations to publish information under the Procurement Regime, in circumstances where:

39.1.1 a Breach Notice served by the Authority is not remedied to the Authority's satisfaction (whether by way of a remedial proposal or otherwise), the Supplier having been provided with the opportunity to remedy such Breach Notice;

39.1.2 a Termination Notice is issued by the Authority;

39.1.3 damages are awarded in favour of the Authority in connection with this Contract; or

39.1.4 a settlement agreement is entered into between the Authority and the Supplier as a result of the Supplier's breach of this Contract,

then, the Authority may publish such information in notices as required from time to time by the Procurement Regime including, without limitation, a Contract Performance Notice.

40 Which law applies

40.1 This Contract and any issues arising out of, or connected to it, are governed by English law.

Signed by
PEARSON EDUCATION LIMITED

[redacted] [redacted]

Signature: [redacted]

Signed by
DEPARTMENT FOR EDUCATION

[redacted] [redacted]

Signature: [redacted]

Schedule 1

Definitions and Interpretation

1 Interpretation

1.1 In this Contract, unless the context otherwise requires, capitalised expressions shall have the meanings set out in this Schedule 1 (*Definitions and Interpretation*) or the relevant Schedule in which that capitalised expression appears.

1.2 If a capitalised expression does not have an interpretation in this Schedule or any other Schedule, it shall, in the first instance, be interpreted in accordance with the common interpretation within the relevant market sector where appropriate. Otherwise, it shall be interpreted in accordance with the dictionary meaning.

1.3 In this Contract, unless the context otherwise requires:

1.3.1 the singular includes the plural and vice versa;

1.3.2 reference to a gender includes the other gender and the neuter;

1.3.3 references to a person include an individual, company, body corporate, corporation, unincorporated association, firm, partnership or other legal entity or Crown Body;

1.3.4 references to a legal entity (other than the Supplier) shall include unless otherwise expressly stated any statutory successor to such entity and/or the relevant functions of such entity, and references to the Department shall include, where relevant, Skills England;

1.3.5 a reference to any Law includes a reference to that Law as amended, extended, consolidated or re-enacted from time to time;

1.3.6 any reference to this Contract or to any other document shall include any variation, amendment or supplement to such document;

1.3.7 the words "**including**", "**other**", "**in particular**", "**for example**" and similar words shall not limit the generality of the preceding words and shall be construed as if they were immediately followed by the words "**without limitation**";

1.3.8 references to "**writing**" include typing, printing, lithography, photography, display on a screen, electronic and facsimile transmission and other modes of representing or reproducing words in a visible form, and expressions referring to writing shall be construed accordingly;

1.3.9 references to "**clauses**" and "**Schedules**" are, unless otherwise provided, references to the clauses of and schedules to the Core Terms and references in any Schedule to parts, paragraphs, annexes and tables are, unless otherwise provided, references to the parts, paragraphs, annexes and tables of the Schedule in which these references appear;

1.3.10 references to "**paragraphs**" are, unless otherwise provided, references to the paragraph of the appropriate Schedules unless otherwise provided; and

1.3.11 the headings in this Contract are for ease of reference only and shall not affect the interpretation or construction of this Contract.

2 Definitions

2.1 In this Contract, unless the context otherwise requires, the following words shall have the following meanings:

"**Academic Year**" means 1 August to 31 July in the following calendar year;

"**Additional Service**" means each additional service listed in Schedule 6 (*Pricing Schedule*) and detailed in Annex 10 to the Service Requirements;

"**Affected Party**" means the party seeking to claim relief in respect of a Force Majeure Event;

"**Affiliates**" means in relation to a body corporate, any other entity which directly or indirectly Controls, is Controlled by, or is under direct or indirect common Control of that body corporate from time to time;

"**Ancillary Materials**" means all information and materials (other than Key Materials) to which the Authority and/or a Future Supplier would require access for use for the Portability Purposes, and any other materials which would be required on or to facilitate succession to a Future Supplier in a seamless manner in relation to the TQ offered or Operated by the Supplier. Ancillary Materials shall include, without limitation:

(a) Student results including grades;
(b) statistical analysis for grading (excludes the systems supporting the analysis);
(c) lists of Providers;
(d) marked Student evidence (with moderation outcomes);
(e) documentation which provides an overview or analysis of Student performance (including chief examiner and chief moderator reports), which include but are not limited to, examples of student responses to assessment questions and/or tasks as well as narrative explaining why students did well/ less well on individual items/ components/ subcomponents);
(f) data on Student credits;
g) data on Student appeals;
(h) data on special considerations for Students;
(i) the Assessment Strategy;
(j) Student registrations;
(k) draft materials in preparation for forthcoming assessments;
(l) the Key Dates Schedule (in respect of forthcoming assessments);
(m) lists, with contact details, of people contracted by the Supplier to perform or oversee activities which are necessary for the conduct and quality assurance of assessments for the TQ;
(n) materials from completed assessments, such as completed Students' examination answer booklets; and
(o) TQ Live Assessment Materials.

"**Approval**" means the prior written consent of the Authority and "Approve" and "Approved" shall be construed accordingly;

"Approved Assessment Strategy" shall have the meaning given in Schedule 2 (*Service Requirements*);

"**Approved Initial TQ Deliverables**" means the Initial TQ Deliverables approved by the Authority in accordance with clause 5.13 (*Developing the TQ and achieving DfE Approval*) or clause 8.10 or 8.11 (*TQ Changes*) (as the case may be) as such deliverables are reviewed and updated in accordance with this Contract;

"**Approved Provider**" means an Eligible Provider that has been granted Provider Approval in accordance with clause 7.1 (*Interaction with Providers*) and in respect of which such Provider Approval has not been revoked pursuant to clause 7.2 (*Interaction with Providers*);

"Approved Provider's Quality Assurance Process" means the quality assurance process referred to in, and meeting the requirements of, the relevant part of the Product Description for the TQ Specification;

"Approved TQ Specification" means the TQ Specification approved by the Authority in accordance with clause 5.13 (*Developing the TQ and achieving DfE Approval*) or clause 8.10 or 8.11 (*TQ Changes*) (as the case may be);

"Assessment Guidance for Providers" means the assessment guidance for providers referred to in, and meeting the requirements of, the Product Description for the Assessment Guidance for Providers;

"**Assessment Strategy**" means the assessment strategy referred to in, and meeting the requirements of, the Product Description for the Assessment Strategy, which unless otherwise agreed in writing with the Authority must be consistent with the relevant details forming part of the Supplier's Response;

"**Assessors**" means any assessor appointed by the Supplier to assess performance by Students in respect of the TQ Live Assessment Materials;

"Audit" means the Authority's right to:

(a) verify the accuracy of the Charges and any other amounts payable by the Authority (including proposed or actual variations to them in accordance with this Contract);

(b) verify the costs of the Supplier (including the costs of all Subcontractors and any third-party suppliers) in connection with the provision of the Services (including the supply of the Products);

(c) verify the Supplier's and each Subcontractor's compliance with the applicable Law;

(d) identify or investigate actual or suspected breach of clauses 32 to 35, impropriety or accounting mistakes or any breach or threatened breach of security and in these circumstances the Authority shall have no obligation to inform the Supplier of the purpose or objective of its investigations;

(e) verify the Supplier's compliance with 0 (*Data Handling and Security Management*);

(f) identify or investigate any circumstances which may impact upon the financial stability of the Supplier, and/or its ability to provide the Services including to supply the Products;

(g) obtain such information as is necessary to fulfil the Authority's obligations to supply information for Parliamentary, ministerial, judicial or administrative purposes including the supply of information to the Comptroller and Auditor General;

(h) review any books of account and the internal contract management accounts kept by the Supplier in connection with this Contract;

(i) carry out the Authority's internal and statutory audits and to prepare, examine and/or certify the Authority's annual and interim reports and accounts;

(j) enable the National Audit Office to carry out an examination pursuant to Section 6(1) of the National Audit Act 1983 of the economy, efficiency and effectiveness with which the Authority has used its resources;

(k) verify the accuracy and completeness of any Management Information delivered or required by this Contract; and/or

(l) obtain such information as is necessary to undertake a review and/or assessment of the performance of the whole or any part of the T Levels Programme;

"Auditor" means any, or any combination, of:

(a) the Authority's internal and external auditors;

(b) the Authority's statutory or regulatory auditors;

(c) the Comptroller and Auditor General, its staff and/or any appointed representatives of the National Audit Office;

(d) HM Treasury or the Cabinet Office;

(e) any party formally appointed by the Authority to carry out audit or similar review functions; and

(f) successors or assigns of any of the above;

"Authority Authorised Representative" means the person referred to in Schedule 20 as such or the representative appointed by the Authority from time to time in relation to this Contract as notified in writing (which may, in the case of this specific notification, be by email only) to the Supplier;

"**Authority Mark**" means the Authority's name and/ or logo, or His Majesty's Government's name and/ or logo, or such other name and/or logo as shall be prescribed by the Authority;

"**Authority Procedural Review**" means the Authority's procedural review process as published on the Authority's web site from time to time;

"Awarding Organisation" means a body recognised by Ofqual as a provider of certain qualifications;

"Background IPR" means any IPR owned by a party prior to the Effective Date or created or developed by a party independently of this Contract, but does not include IPR in Key Materials;

"Beneficiary" means a Party having (or claiming to have) the benefit of an indemnity under this Contract;

"**Breach Notice**" means a written notice of breach given by one Party to the other, notifying the Party receiving the notice of its breach of this Contract;

"Breach of Security" means the occurrence of:

(a) any unauthorised access to or use of the Services and/or the Products, the sites from which the Services are delivered (and/or where the Products are developed, and/or stored) and/or any information and communication technology, information or data (including the Confidential Information and the DfE Data) used by the Authority and/or the Supplier in connection with this Contract; and/or

(b) the loss and/or unauthorised disclosure of any information or data (including the Confidential Information and the DfE Data), including any copies of such information or data, used by the Authority and/or the Supplier in connection with this Contract,

in either case as may be more particularly set out in the Security Policy;

"Business Continuity Plan" means the business continuity and disaster recovery plan relating to this Contract, as set out in Schedule 10 (*Business Continuity*);

"Cabinet Office Statement" means the Cabinet Office Statement of Practice – Staff Transfers in the Public Sector 2000 (as revised 2013) as may be amended or replaced;

"Change in Law" means any change in Law which impacts on the provision of the Services (including the supply of the Products) and/or the performance of this Contract which comes into force after the Effective Date;

“Charges” means:

(a) the Development Charge payable to the Supplier by the Authority in accordance with clause 4.1.1 (*Pricing and payments*);

(b) in respect of any Exclusive TQ Change, the amount (exclusive of any applicable VAT) agreed or determined in respect of such Exclusive TQ Change in accordance with clause 8.6 (*TQ Changes*); and

(c) in respect of any other Variation, the amount agreed pursuant to clause 28 (*Changing this Contract*) in respect of such Variation;

“Claim” means any claim for which it appears that a Beneficiary is, or may become, entitled to indemnification under this Contract;

“Cohort” means a group of Students who are registered by an Approved Provider with the Supplier to commence the TQ in the relevant Academic Year;

“Commercially Sensitive Information” means the Confidential Information listed in Schedule 18 (*Commercially Sensitive Information*) comprising of commercially sensitive information relating to the Supplier, its IPR or its business which the Supplier has indicated to the Authority that, if disclosed by the Authority, would cause the Supplier significant commercial disadvantage or material financial loss;

“**Comparable Supply**” means the supply of services to the Authority or another customer or client of the Supplier that are the same as or similar to the Services (including the supply of products that are the same as or similar to the Products) including services relating to qualifications in England outside the T Levels Programme;

“**Conditions of Recognition**” means the conditions of Ofqual Recognition imposed on the Supplier by Ofqual including any general level conditions, qualification level conditions, subject level conditions and special conditions;

“**Confidential Information**” means, subject to clause 19.8 (*What must be kept confidential*), any information, however it is conveyed, that relates to the business, affairs, developments, trade secrets, Know-How, personnel and suppliers of the Authority or the Supplier, including IPRs, together with information derived from the above, and any other information clearly designated as being confidential (whether or not it is marked as “**confidential**”) or which ought reasonably to be considered to be confidential. Confidential Information shall not include Student Related Data;

"**Conflict of Interest**" means a conflict between the financial or personal duties of the Supplier, or the Supplier Staff and the duties owed to the Authority under this Contract, in the reasonable opinion of the Authority. This includes where:

(a) the Supplier's interests in any activity undertaken by the Supplier, on its behalf, or by an Affiliate of the Supplier have the potential to lead the Supplier to act contrary to the Supplier's interests in the development, delivery and award of the TQ in accordance with the Conditions of Recognition;
(b) a person who is connected to the development, delivery, or award of the TQ by the Supplier has interests in any other activity which have the potential to lead that person to act contrary to his or her interests in that development, delivery or award in accordance with the Conditions of Recognition, or
(c) an informed and reasonable observer would conclude that either of these situations was the case;

"**Continuing Activities**" means activities of the Supplier under this Contract in relation to the TQ which continue following the end of the first Academic Year for the final Exclusive Cohort, such as retakes, appeals, and ongoing records management;

"**Contract**" means this contract;

"**Contract Month"** means each calendar month, provided that:

(a) the first Contract Month shall commence on and from the Effective Date and shall end on the last day of the calendar month in which the Effective Date occurs; and
(b) the last Contract Month shall commence on and from the first day of the calendar month in which the End Date occurs and shall end on the End Date;

"**Contract Performance Notice**" means contract performance notices as required by the Procurement Regime";

"Contract Period" means the period for which this Contract would remain in force (taking into account any current Extension Period) if not terminated earlier;

"**Contract Termination Notice**" means a notice published by the Authority in accordance with section 80 of the Procurement Act 2023;

"**Control"** means the possession by a person, directly or indirectly, of the power to direct or cause the direction of the management and/or policies of the other person (whether through the ownership of voting shares, by contract or otherwise) and

"**Controlled**" shall be construed accordingly;

"Controller" has the same meaning as in the GDPR;

"Core Terms" means the terms set out in the main body of this Contract;

"Critical Service Failure" means:

(a) the Ofqual Recognition of the Supplier to make the TQ available to Approved Providers for delivery to Students is withdrawn;

(b) a failure by the Supplier to make the Final Submission by the Final Approval Milestone Date or the failure of any Final Submission (or Final Re-Submission) to meet the requirements necessary to achieve DfE Approval (in each case other than where such failure results from a breach of this Contract by the Authority);

(c) a failure by the Supplier to make a Final Re-Submission within the time period required by clause 5.13.2 (*Developing the TQ and achieving* DfE *Approval*) (other than where such failure results from a breach of this Contract by the Authority);

(d) the Authority withdraws DfE Approval (having previously awarded DfE Approval) in accordance with this Contract;

(e) any failure by the Supplier to perform a Designated Action within the specified timeframe for that Designated Action (other than where such failure results from a breach of this Contract by the Authority);

(f) any Supplier Termination Event which has occurred in respect of the Supplier in its role as an Awarding Organisation for any part of the T Levels Programme outside this Contract;

(g) any Breach of Security which either (i) results in material personal data being lost or compromised or shared without authorisation; or (ii) is not notified to the Authority promptly (and in any event within one Working Day);

(h) the Supplier breaches its obligations relating to the confidentiality of assessment papers (prior to the relevant assessment date) and/or Student results (prior to the relevant publication date); and

(i) any other event, matter or circumstance which is expressed to be (or deemed to be) a Critical Service Failure in this Contract;

"Crown Body" means the government of the United Kingdom (including the Northern Ireland Assembly and Executive Committee, the Scottish Executive and the National Assembly for Wales), including government ministers and government departments and bodies, persons, commissions or agencies from time to time carrying out functions on its behalf;

“Data Protection Legislation” means:

(a) the GDPR;

(b) the Data Protection Act 2018 to the extent that it relates to processing of personal data and privacy; and

(c) all applicable Law about the processing of personal data and privacy;

“Default” means any breach of the obligations of the Supplier (including abandonment of this Contract in breach of its terms) or any other default (including material default), act, omission, negligence or statement of the Supplier, of its Subcontractors or any Supplier Staff howsoever arising in connection with or in relation to the subject-matter of this Contract and in respect of which the Supplier is liable to the Authority;

“Deliverable” means all information and data the Supplier creates, identifies for use, or uses as part of or for the Operation of the TQ, including Products and Management Information;

“Department” means the Secretary of State for Education;

“Designated Action” means an action which the Authority requires the Supplier to take within a specified timeframe to obtain and/or maintain DfE Approval and/or to ensure ongoing compliance of the Supplier with the terms of this Contract and such action may include:

(a) working in a prescribed way with Authority personnel and/or a third party appointed by the Authority to achieve certain specified performance and/or progress improvements;

(b) taking appropriate remedial actions in the event that any Initial Development Services and/or interim Products provided during the Development Phase are not in line with the trajectory set out in the Implementation and Delivery Plan;

(c) temporarily suspending and/or restricting any elements (in full or part) of the Services (including the supply of any Products);

(d) complying with increased performance monitoring, provision of information and/or increased audit;

(e) complying with any reasonable instructions of the Authority to help to mitigate actual and/or potential risks associated with delivery of the T Levels Programme; and/or

(f) providing reasonable cooperation to other Awarding Organisations and third party suppliers of the Authority appointed in connection with the T Levels Programme;

"Development Charge" means the amount (exclusive of any applicable VAT) referred to as the "Qualification development charge" in Schedule 6 (*Pricing Schedule*);

"Development Phase" The period between commencement of the Contract and the Approval of the TQ, being the period during which the TQ is developed by the Supplier.

"Development Phase Report" means the report referred to in the second row of the first column in the Table in Annex 9 to the Service Requirements and containing the information set out in the second row of the second column of that Table;

"Devolved Administration" means the government of Scotland, Northern Ireland and/or Wales;

"DfE Approval" means approval by the Authority pursuant to section -A2D3 of the Apprenticeships, Skills, Children and Learning Act 2009 for the TQ to be made available to Approved Providers and/or Students based on the TQ meeting the requirements of paragraph 2.1 or 2.3 of Part 1 of the Services Requirements as applicable to the satisfaction of the Authority;

"DfE Data" means:

(a) the data, text, drawings, diagrams, images or sounds (together with any database made up of any of these) which are embodied in any electronic, magnetic, optical or tangible media, including any of the Authority's Confidential Information, and which:
    (i) are supplied to the Supplier by or on behalf of the Authority; or
    (ii) the Supplier is required to generate, process, store or transmit pursuant to this Contract;

(b) any Personal Data for which the Authority is the Controller; or

(c) Student Related Data;

"Disclosing Party" means the Party directly or indirectly providing Confidential Information to the other Party in accordance with clause 19 (*What must be kept confidential*);

"Dispute" means any claim, dispute or difference which arises out of or in connection with this Contract or in connection with the negotiation, existence, legal validity, enforceability or termination of this Contract, whether the alleged liability shall arise under English law or under the law of some other country and regardless of whether a particular cause of action may successfully be brought in the English courts;

"Dispute Resolution Procedure" means the dispute resolution procedure set out in clause 38 (*Resolving disputes*);

"Documentation" means descriptions of the Services (including the Products) and KPIs, technical specifications, user manuals, training manuals, operating manuals, process definitions and procedures, system environment descriptions and all such other documentation (whether in hardcopy or electronic form) that is required to be supplied by the Supplier to the Authority under this Contract as:

(a) would reasonably be required by a competent third party capable of Good Industry Practice contracted by the Authority to develop, configure, build, deploy, run, maintain, upgrade and test the individual systems that are utilised to supply the Services or Products;
(b) is required by the Supplier in order to supply the Services or Products; and/or
(c) has been or shall be generated for the purpose of supplying the Services or Products;

"Early Exit" means any termination of this Contract that occurs prior to the Supplier achieving DfE Approval;

"Effective Date" means the date on which the last Party to sign has signed this Contract;

"Effective Date of Variation" means the date on which the Variation Form comes into effect.

"EIRs" means the Environmental Information Regulations 2004;

"Eligible Provider" means any Provider who is currently funded by the Department to offer 16 – 19 study programmes and with existing students in band 5 (the full-time national funding band). Providers who have a contract with the Department to provide apprenticeships or adult provision only are not eligible;

"Emergency Exit" means any termination of this Contract other than an Early Exit that is a:

(a) termination of the whole or part of this Contract prior to the Expiry Date (as extended by any Extension Period); or
(b) wrongful termination or repudiation of this Contract by either Party;

"Employee Liability" means all claims, actions, proceedings, orders, demands, complaints, investigations (save for any claims for personal injury which are covered by insurance) and any award, compensation, damages, tribunal awards, fine, loss, order, penalty, disbursement, payment made by way of settlement and costs, expenses and legal costs reasonably incurred in connection with a claim or investigation including in relation to the following:

(a) redundancy payments including contractual or enhanced redundancy costs, termination costs and notice payments;
(b) unfair, wrongful or constructive dismissal compensation;
(c) a failure to comply with TUPE;
(d) compensation for discrimination on grounds of sex, race, disability, age, religion or belief, gender reassignment, marriage or civil partnership, pregnancy and maternity or sexual orientation or claims for equal pay;
(e) compensation for less favourable treatment of part-time workers or fixed term employees;
(f) outstanding debts and unlawful deduction of wages including any PAYE and National Insurance in relation to payments made by the Authority or the Replacement Supplier to a Transferring Supplier Employee which would have been payable by the Supplier or the Subcontractor if such payment should have been made prior to the Service Transfer Date and also including any payments arising in respect of pensions;
(g) claims whether in tort, contract or statute or otherwise;
(h) any investigation by the Equality and Human Rights Commission or other enforcement, regulatory or supervisory body and of implementing any requirements which may arise from such investigation;

"Employer" means any employer who has or is likely to employ Students who have successfully obtained a T Level qualification;

"Employer and Provider Engagement Strategy" means a clear and detailed strategy detailing the approach to engaging with Employers and Providers in relation to the design, development, delivery, validation and update of the TQ and the Services, including the approach to sharing early and/or amended drafts of the Initial TQ Deliverables and TQ Deliverables with Employers and Providers (as applicable), and means the employer and provider engagement strategy referred to in, and meeting the requirements of, the Product Description for the Employer and Provider Engagement Strategy;

"Employer Set Project Grade Exemplar Responses" means actual marked examples of Students' assessment evidence, selected after awarding, as referred to in Service Requirement 5.1, which; meet the requirements for grade A and grade E; are produced (and reviewed each Academic Year) in consultation with Employers; and are accompanied by an explanatory commentary;

"**Employer Set Project Guide Exemplar Responses**" means indicative guide examples of Students' assessment evidence as referred to in Service Requirement 5.1, which; the Supplier judges would be likely to meet the minimum requirements for grade A and grade E; are produced in consultation with Employers; and are accompanied by an explanatory commentary;

"End Date" means the earlier of:

(a) the Expiry Date (as extended by any Extension Period implemented by the Authority under clause 15 (*Ending or extending this Contract*) or as reduced by the Authority in accordance with clause 14.3.2 (*What may happen if there are issues with your provision of the Services*); or

(b) if this Contract is terminated before the date specified in (a) above, the date of termination of this Contract

"Enhanced Entry Fee" shall have the meaning given in paragraph 2.3 of Schedule 6A (Adaptive Pricing)

"Entry Fee" shall have the meaning as referred to at subsection (a) of the definition of Fees;

"Entry Transition Period" means the period from the Effective Date of this Contract to the End Date of the Authority's Contract with the Former Supplier, e.g. from the point when the Supplier has been awarded a contract for provision of the TQ, but a contract with the Former Supplier remains in place for existing Students;

"Entry Transition Plan" means the plan produced as part of the Supplier's Tender, and included in Schedule 5 (*Supplier's Response*), where relevant, and updated by the Supplier as contemplated by Schedule 4 (*Co-Operation*), and in accordance with paragraphs 2.1 and 2.2 of Schedule 22 (*Entry Management)*;

"Environmental Policy" means to conserve energy, water, wood, paper and other resources, reduce waste and phase out the use of ozone depleting substances and minimise the release of greenhouse gases, volatile organic compounds and other

substances damaging to health and the environment, including any written environmental policy of the Authority;

"Equality and Human Rights Commission" means the UK Government body named as such as may be renamed or replaced by an equivalent body from time to time;

"Exclusive Cohort" has the meaning given in clause 2.2 (*Appointment and exclusivity*);

"**Exclusive TQ Change**" means:

(a) the addition of one or more new Occupational Specialist Component(s) which are to be added to the TQ following the Initial Content Date; and/or
(b) the removal of one or more Occupational Specialist Component(s); and/or
(c) a TQ Change which is requested by the Authority as a result of revision to a relevant Standard arising out of a statutory review of such Standard by the Authority under section A2D3 of the Apprenticeships, Skills, Children and Learning Act 2009;

"**Exemplification Materials"** means the Guide Standard Exemplification Materials and the Grade Standard Exemplification Materials;

"Exit Information" has the meaning given to it in paragraph 3.2 of Schedule 12 (*Exit Management*);

"Exit Plan" means the plan produced and updated by the Supplier during the Term in accordance with paragraphs 1 and 2 of Schedule 12 (*Exit Management*);

"Expiry Date" means 1 year following expiry of the final Academic Year for the final Exclusive Cohot;

"Extension Entry Fee" shall have the meaning given in paragraph 3.1.2 of Schedule 6A (Adaptive Pricing);

"Extension Period" means a period equal to that required to provide the Services (including the supply of any Products) to extend the contract –

(a) for one further Cohort, such period to commence at the start of the Academic Year immediately following the end of the Academic Year in which the fifth Exclusive Cohort commences the TQ; and, at the Authority's discretion,

(b) for a second further Cohort, such period to commence at the start of the Academic Year immediately following the end of the Academic Year in which the sixth Exclusive Cohort commences the TQ; and at the Authority's discretion,

(c) for a third further Cohort, such a period to commence at the start of the Academic Year immediately following the end of the Academic Year in which the seventh Exclusive Cohort commences the TQ.

"Extension Review" shall have the meaning given in paragraph 1.1.2 of Schedule 6A (Adaptive Pricing);

"**Fees**" means:

(a) in respect of the provision of the Provider Services (other than the Additional Services), the amount (exclusive of any applicable VAT) referred to as "Entry fee" in Schedule 6 (*Pricing Schedule*) payable per registered Student to the Supplier by the Approved Providers in accordance with clause 4.1.2 (*Pricing and payments*); and

(b) the Additional Services, the amount (exclusive of any applicable VAT) applicable to the relevant Additional Service as set against that Additional Service in Schedule 6 (*Pricing Schedule*) payable to the Supplier by the Approved Providers in accordance with clause 4.1.2 (*Pricing and payments*);

(c) in each case, as such fees are adjusted in accordance with clauses 4.12 and 4.13 (*Pricing and payments*);

"First Extension" shall have the meaning given in paragraph 3.1 of Schedule 6A (Adaptive Pricing);

"Final Approval Milestone" means the Milestone set out in the third row of the Table in Annex 7 to the Service Requirements;

"Final Approval Milestone Date" means the date set out against the Final Approval Milestone in the second column of the Table at Annex 7 to the Service Requirements;

"Final Milestone Payment" means an amount equal to 30% of the Development Charge;

"Final Re-Submission" means the relevant documentation and/or additional information that the Supplier is required to re-submit in accordance with clause 5.13.2 (*Developing the TQ and achieving DfE Approval*);

“Final Submission” means the Submission applicable to the Final Approval Milestone;

“Final Updated Projection” shall have the meaning given in paragraph 3.1.1 of Schedule 6A (Adaptive Pricing);

“FOIA” means the Freedom of Information Act 2000 as amended from time to time and any subordinate legislation made under that Act from time to time together with any guidance and/or codes of practice issued by the Information Commissioner or relevant Government department in relation to such legislation;

“Force Majeure Event” means, subject to clause 24.4 (*Circumstances beyond either Party’s control*), any event outside the reasonable control of either Party affecting its performance of its obligations under this Contract arising from acts, events, omissions, happenings or non-happenings beyond its reasonable control and which are not attributable to any wilful act, neglect or failure to take reasonable preventative action by that Party, including riots, war or armed conflict, acts of terrorism, acts of government, local government or regulatory bodies, fire, flood, storm or earthquake, or other natural disaster but excluding any industrial dispute relating to the Supplier or the Supplier Staff or any other failure in the Supplier’s or a Subcontractor’s supply chain;

“Force Majeure Notice” means a written notice served by the Affected Party on the other Party stating that the Affected Party believes that there is a Force Majeure Event;

“Former Supplier” means the Awarding Organisation that is operating or operated the T Level technical education qualification under the Original Contract;

"Former Supplier’s TQ" means a technical education qualification forming part of the T Levels Programme which is replaced by the TQ which is the subject of this Contract;

"Former Supplier’s TQ Specification" means the Specification of Content, the Scheme of Assessment and the Approved Provider’s Quality Assurance Process, designed, developed and delivered by a Former Supplier that meets all of the requirements of the Product Description for the TQ Specification; including any TQ Changes required by the Authority notified to the Former Supplier;

“Future Supplier” means any Awarding Organisation appointed, at any point in the future and including any Replacement Supplier, to operate one or more T Level technical education qualifications by or at the direction of the Authority from time to time, and

where the Authority is operating a T Level technical education qualification, shall also include the Authority;

"GDPR" means the UK General Data Protection Regulation;

"General Change in Law" means a Change in Law where the change is of a general legislative nature (including taxation or duties of any sort affecting the Supplier) or which also affects and/or relates to a Comparable Supply;

"Good Industry Practice" means standards, practices, methods and procedures conforming to the Law and the exercise of the degree of skill and care, diligence, prudence and foresight which would reasonably and ordinarily be expected from a skilled and experienced person or body engaged within the relevant industry or business sector;

"Grade Standard Exemplification Materials" means the exemplification materials referred to in, and meeting the requirements of, the relevant part of the Product Description for the Exemplification Materials;

"**Guide Standard Exemplification Materials"** means the exemplification materials referred to in, and meeting the requirements of, the relevant part of the Product Description for the Exemplification Materials and Approved by the Authority;

"**Impact Assessment**" means an assessment of the impact of a Variation request completed in good faith, including:

(a) details of the impact of the proposed Variation on the Services (including the supply of the Products) and the Supplier's ability to meet its other obligations under this Contract;
(b) details of the cost of implementing the proposed Variation;
(c) details of the ongoing costs required by the proposed Variation when implemented, including any increase or decrease in the Charges and/or the Fees (as applicable), any alteration in the resources and/or expenditure required by either Party and any alteration to the working practices of either Party;
(d) a timetable for the implementation, together with any proposals for the testing of, the Variation; and
(e) such other information as the Authority may reasonably request in (or in response to) the Variation request;

“Implementation and Delivery Plan” means the outline Implementation and Delivery Plan prepared by the Supplier as part of the Supplier’s Response for implementation of the Services and supply of the Products (including to meet the Milestones) and which, as at the Effective Date, is set out in Schedule 3 (*Implementatio*n), as such plan is, subject to paragraph 2.5 of Part 1 of the Service Requirements, developed and amended from time to time to fully meet the requirements of the Product Description for the “Implementation and Delivery Plan”;

“Inclusive TQ Change” means any TQ Change that is not an Exclusive TQ Change;

“Indemnifier” means a Party from whom an indemnity is sought under this Contract;

“Information Commissioner” means the UK's independent authority which deals with ensuring information relating to rights in the public interest and data privacy for individuals is met, whilst promoting openness by public bodies;

“Initial Content Date” has the meaning given in clause 8.2 (*TQ Changes*);

“**Initial Development Services**” shall have the meaning given in paragraph 2.1 of Part 1 of the Service Requirements;

“Initial Projection” shall have the meaning given in paragraph 2.3 of Schedule 6A (Adaptive Pricing);

“**Initial TQ Deliverables”** means each of:

(a) The TQ Specification;
(b) TQ Specimen Assessment Materials;
(c) the Provider Approval Criteria; and
(d) the Assessment Strategy;

“Insolvency Event” with respect to any person, means:

(a) that person suspends, or threatens to suspend, payment of its debts, or is unable to pay its debts as they fall due or admits inability to pay its debts, or:
  (i) (being a company or a LLP) is deemed unable to pay its debts within the meaning of section 123 of the Insolvency Act 1986, or
  (ii) (being a partnership) is deemed unable to pay its debts within the meaning of section 222 of the Insolvency Act 1986;
(b) that person commences negotiations with one or more of its creditors (using a voluntary arrangement, scheme of arrangement or otherwise) with a view to

rescheduling any of its debts, or makes a proposal for or enters into any compromise or arrangement with one or more of its creditors or takes any step to obtain a moratorium pursuant to Section 1A and Schedule A1 of the Insolvency Act 1986 other than (in the case of a company, a LLP or a partnership) for the sole purpose of a scheme for a solvent amalgamation of that person with one or more other companies or the solvent reconstruction of that person;

(c) another person becomes entitled to appoint a receiver over the assets of that person or a receiver is appointed over the assets of that person;

(d) a creditor or encumbrancer of that person attaches or takes possession of, or a distress, execution or other such process is levied or enforced on or sued against, the whole or any part of that person's assets and such attachment or process is not discharged within fourteen (14) days;

(e) that person suspends or ceases, or threatens to suspend or cease, carrying on all or a substantial part of its business;

(f) where that person is a company, a LLP or a partnership:

(i) a petition is presented (which is not dismissed within fourteen (14) days of its service), a notice is given, a resolution is passed, or an order is made, for or in connection with the winding up of that person other than for the sole purpose of a scheme for a solvent amalgamation of that person with one or more other companies or the solvent reconstruction of that person;

(ii) an application is made to court, or an order is made, for the appointment of an administrator, or if a notice of intention to appoint an administrator is filed at Court or given or if an administrator is appointed, over that person;

(iii) (being a company or a LLP) the holder of a qualifying floating charge over the assets of that person has become entitled to appoint or has appointed an administrative receiver; or

(iv) (being a partnership) the holder of an agricultural floating charge over the assets of that person has become entitled to appoint or has appointed an agricultural receiver; or

(g) any event occurs, or proceeding is taken, with respect to that person in any jurisdiction to which it is subject that has an effect equivalent or similar to any of the events mentioned above;

"**Intellectual Property Rights**" or "**IPR**" means:

(i) copyright rights related to or affording protection similar to copyright, rights in databases, patents and rights in inventions, semi-conductor topography rights, trade marks, rights in internet domain names and website addresses and other rights in trade or business names, goodwill, designs, Know-How, trade secrets and other rights in Confidential Information;

(ii) applications for registration, and the right to apply for registration, for any of the rights listed at (a) that are capable of being registered in any country or jurisdiction; and

(iii) all other rights having equivalent or similar effect in any country or jurisdiction;

"**Interim Milestone**" means each of the interim Milestones specified in the Table in Annex 7 to the Service Requirements;

"**Interim Milestone Payment**" means:

(a) in respect of Interim Milestone 1, an amount equal to 30% of the Development Charge;

(b) in respect of the Interim Milestone 2, an amount equal to 40% of the Development Charge;

"IPR Claim" means any claim of infringement or alleged infringement (including the defence of such infringement or alleged infringement) of any IPR, used to provide the Services and/or supply the Products or otherwise provided and/or licensed by the Supplier (or to which the Supplier has provided access) to the Authority in the fulfilment of its obligations under this Contract;

"**Issues Log**" means the issues log referred to in, and meeting the requirements of, the Product Description for the Issues Log;

"**Key Dates Schedule**" means a schedule of key dates in relation to the roll-out and operation of the TQ and other technical education qualifications across the T Levels Programme including registration dates and deadlines, assessment dates, and dates for publication of results, which is based on the indicative key dates schedule in Annex 5 to the Service Requirements and is agreed in relation to the T Levels Programme between Awarding Organisations pursuant to Schedule 4 (*Co-operation*) and Approved by the Authority;

"**Key Materials**" means materials the IPR in which the Authority reasonably requires ownership of for the Portability Purposes. Examples of where the Authority may

reasonably require ownership of the IPR include because the Authority or a Future Supplier (or, where relevant, a potential Future Supplier) may need to copy or otherwise reproduce such materials (in whole or in part), to supply or communicate the same, or to be able control the use (in whole or in part) of such materials by third parties, or to authorise others to do so.

Key Materials shall include:

(a) specifications of content for each TQ including core and all specialist components;

(b) assessment guidelines (for Providers);

(c) quality assurance requirements (for Providers);

(d) specimen assessment materials;

(e) standards exemplification materials;

(f) supplementary specimen assessment materials

(g) employer set project guide exemplar responses

(h) employer set project grade exemplar responses

(i) updates or redevelopments of specifications of content;

(j) updates and redevelopments of any Key Materials; and

(k) any materials equivalent to the above to which a Skilled Future Supplier would reasonably require access for the Portability Purposes.

Key Materials shall not include:

(1) Support Materials, insofar as they are not part of any of the expressly included items listed above;

(2) question banks, insofar as they are not part of any of the expressly included items listed above and are not developed for the TQ; and

(3) any systems and platforms used to support the delivery of the TQ, provided that the relevant TQ content or data held in or processed by such systems and/or platforms can be extracted without requiring further processing post-extraction (and the Supplier can demonstrate that they can be so extracted) to enable use of the relevant content and/or data by a Skilled Future Supplier in conjunction with a non-proprietary or generally commercially available system or platform;

"Key Personnel" means the individuals identified as such in the Annex to Schedule 7 (*Staff (including Key Personnel*)) as at the Effective Date or as amended from time to time in accordance with paragraph 1.2 of Schedule 7 (*Staff (including Key Personnel)*);

"Key Roles" means the roles stated in the Annex to Schedule 7 (*Staff (including Key Personnel*)) as at the Effective Date or as amended from time to time in accordance with paragraph 1.2 of Schedule 7 (*Staff (including Key Personnel)*);

"Key Sub-Contract" means each Sub-Contract with a Key Subcontractor;

"Key Subcontractor" means any Subcontractor:

(a) which is relied upon to deliver any material part of the Services (including to supply any Products); and/or

(b) which, in the opinion of the Authority performs (or would perform if appointed) a critical role in the provision of all or any part of the Services (including the supply of any Products),

and which, as at the Effective Date, are listed in Annex 1 to Schedule 8 (*Supply Chain (including approved Subcontractors)*);

"Know-How" means all ideas, concepts, schemes, information, knowledge, techniques, methodology, and anything else in the nature of know-how relating to the Services and/or the Products;

"**KPI**" means a key performance indicator applicable to the provision of the Services (including the supply of the Products), as set out in the first column of the Table attached at Annex 1 to Schedule 15 (*Monitoring of Performance*);

"**KPI Improvement Plan"** shall have the meaning given in paragraph 2.2 of Schedule 15 (*Monitoring of Performance*);

"Law" means any law, subordinate legislation within the meaning of Section 21(1) of the Interpretation Act 1978, bye-law, enforceable right within the meaning of Section 2 of the European Communities Act 1972, regulation, order, regulatory policy, mandatory guidance or code of practice, judgment of a relevant court of law, or directives or requirements with which the Supplier is bound to comply;

"Losses" means all losses, liabilities, damages, costs, expenses (including reasonable legal fees), disbursements, costs of investigation, litigation, settlement, judgment, interest and penalties whether arising in contract, tort (including negligence), breach of statutory duty, misrepresentation or otherwise and "**Loss**" shall be interpreted accordingly;

“Management Information” means the management information to be delivered to the Authority by the Supplier, as set out or referred to in Annex 9 to the Service Requirements;

“Mid-term Review” shall have the meaning given in paragraph 1.1.1 of Schedule 6A (Adaptive Pricing);

“Milestone” means an event or task to be performed as part of the provision of the Services (and/or the supply of the Products) by a specific date as described in the first column of the Table in Annex 7 to the Service Requirements;

“Moderation” means the Supplier assessment process designed to ensure that, where Approved Provider marking is undertaken in accordance with the Approved Assessment Strategy, such marking is scrutinised by a Moderator to ensure that it is in line with expected standards and Students’ marks are adjusted where necessary, and “**Moderate**” will be construed accordingly;

“Moderator” means a moderator, external to the Approved Provider, employed or engaged by the Supplier to moderate marking undertaken by assessors employed or engaged by the Approved Provider of Students’ performance in respect of the TQ Live Assessment Materials;

“Month” means a calendar month and “**Monthly**” shall be interpreted accordingly;

“National Insurance” means contributions required by the National Insurance Contributions Regulations 2012 (SI 2012/1868) made under section 132A of the Social Security Administration Act 1992;

“Notified Sub-contractor” means a Subcontractor to whom Transferring Former Supplier Employees will transfer on a Relevant Transfer Date;

“**Occupation**” means a set of jobs where the main tasks and duties are characterised by a high degree of similarity, where a “job” is a role connected to a specific employment contract in a workplace;

“**Occupational Map”** means, for each Route, a map which groups Occupations according to where there is a requirement for shared technical knowledge, skills, and behaviours, and identifies the Occupations for which Standards exist;

"**Occupational Standard**" means the description of the Occupation and the outcomes (knowledge, skills and behaviours) which a Student will be expected to attain to successfully achieve competence in that Occupation, as approved and published by the Authority;

"**Occupational Specialist Component**" means each occupational specialist component of the TQ as referred to in the Former Supplier's TQ Specification and/or if relevant, the Outline Content;

"**Ofqual"** means the Office of Qualifications and Examinations Regulation, a statutory body created under the Apprenticeships, Skills, Children and Learning Act 2009, as amended by the Education Act 2011, to regulate qualifications, examinations and assessments in England;

"Ofqual Recognition" means recognition of the Supplier by Ofqual in respect of the TQ under section 132 of the Apprenticeships, Skills, Children and Learning Act 2009;

"**Ongoing Development Services"** shall have the meaning given in paragraph 2.3 of Part 1 of the Service Requirements;

"Operate" in relation to a qualification means to provide the Services or a material part of the Services, or services replacing the Services or a material part of the Services, or of an equivalent character to the Services or a material part of the Services in relation to any other qualification (whether a TQ or not); and **"Operation"** and other cognate terms shall have a corresponding meaning;

"Operational Delivery Report" means the report referred to in the third row of the first column in the Table in Annex 9 to the Service Requirements and containing the information set out in the third row of the second column of that Table;

"**Ordinary Exit**" means any termination of this Contract (other than an Early Exit) that occurs as a result of the expiry of the Contract on the Expiry Date (as extended by any Extension Period);

"Original Contract" means the contract entered into between the Authority and the Former Supplier for the provision of Services (including the supply of any Products) for the TQ prior to the Effective Date of this Contract and remains in place until the end of the Entry Transition Period;

“Outline Content” means the outline content developed for the TQ by the Authority and/or Skills England, as amended, supplemented and/or replaced from time to time;

“Parliament” takes its natural meaning as interpreted by Law;

“Party” means the Authority, or the Supplier and “**Parties**” means both of them where the context permits;

“Pathway” means a sub-set of a Route, which groups common sets of Occupations into a number of occupational clusters together;

“**Performance Monitoring Methodology**” means the required evidence and measurement methodology that is to be applied by the Supplier to assess its performance of the relevant part of the Services (including the supply of any Products) to which the KPI in question relates, as such evidence and measurement methodology are set out in the fifth and sixth columns (respectively) of the Table attached at Annex 1 to Schedule 15 (*Monitoring of Performance*);

“**Performance Monitoring Period**” means the period set out against the relevant KPI in the fourth column of the Table attached at Annex 1 to Schedule 15 (*Monitoring of Performance*);

“**Performance Review Meeting”** shall have the meaning given in paragraph 0 of Schedule 15 (*Monitoring of Performance*);

“Personal Data” means “personal data” (as defined in the GDPR) that are processed under this Contract;

“**Portability Purposes”** means in order:

(a) to secure a smooth transition to a Skilled Future Supplier;
(b) to enable the Authority to procure a Skilled Future Supplier (including inviting competition and/or tenders), and for a potential Skilled Future Supplier to compete openly and effectively in any future competition or tender for, delivery and/or Operation of the TQ currently delivered by the Supplier and/or a Replacement TQ;
(c) to enable a Skilled Future Supplier to deliver and/or Operate the TQ and/or a Replacement TQ; to enable the Authority and/or any Skilled Future Supplier to carry out or have carried out any Continuing Activities; and/or

(d) to enable a Skilled Future Supplier to supply, to Providers, the TQ and/or Replacement TQ and sufficient information and materials (including Support Materials) for Providers to deliver the TQ in a Transparent manner;

"Post-Results Services" means the Services described in and/or provided pursuant to paragraph 9 of Part 1 of the Service Requirements, including the Additional Services;

"**Pre-Delivery Phase**" means the period between the Approval of the TQ and the first teaching of the TQ by Providers, being the period during which Supplier and Providers prepare for delivery;

"Prescribed Person" means a legal adviser, an MP or an appropriate body which a whistle-blower may make a disclosure to as detailed in 'Whistleblowing: list of prescribed people and bodies', 5 October 2019, available online at: https://www.gov.uk/government/publications/blowing-the-whistle-list-of-prescribed-people-and-bodies--2/whistleblowing-list-of-prescribed-people-and-bodies;

"Processor" has the same meaning as in the GDPR and "**Processing**" and "**Processed**" shall be interpreted accordingly;

"**Procurement Regime**" The Procurement Act 2023 and any other applicable law, regulation and/or guidance which may from time to time be in force and/or applicable.

"**Product**" means each product listed in the first column of the Table in Part 3 of the Service Requirements;

"**Product Description"** means the description of the Authority's minimum requirement for the relevant Product set out in the second column of the Table in Part 3 of the Service Requirements, together with such further information, data and/or content as should reasonably be expected by the Supplier having regard to the Authority's requirements under this Contract and the Supplier's obligations under clause 3.1 (*How the Services must be supplied*);

"Prohibited Acts" means:

(a) to directly or indirectly offer, promise or give any person working for or engaged by the Authority or any other public body a financial or other advantage to:

(i) induce that person to perform improperly a relevant function or activity; or

(ii) reward that person for improper performance of a relevant function or activity;

(b) to directly or indirectly request, agree to receive or accept any financial or other advantage as an inducement or a reward for improper performance of a relevant function or activity in connection with this Contract; or

(c) committing any offence:

(i) under the Bribery Act 2010 (or any legislation repealed or revoked by such Act); or

(ii) under legislation or common law concerning fraudulent acts; or

(iii) defrauding, attempting to defraud or conspiring to defraud the Authority or other public body; or

(d) any activity, practice or conduct which would constitute one of the offences listed under (c) above if such activity, practice or conduct had been carried out in the UK;

"Provider" means an organisation that has a grant agreement and/or a contract in place with the Department to provide qualifications to Students or that provides such services on a privately funded basis;

"Provider Approval" means approval of the Eligible Provider in accordance with clause 7.1 (*Interaction with Providers*);

"Provider Approval Criteria" means the approval criteria referred to in, and meeting the requirements of, the Product Description for the Provider Approval Criteria;

"Provider Contract" means a contract between an Approved Provider and the Supplier in respect of the TQ meeting the requirements set out in Schedule 17 (*Provider Contract requirements*);

"Provider Services" means the Services, other than the Initial Development Services and the Ongoing Development Services;

"Rate Card" means the Supplier's rate card as set out in Schedule 6 (*Pricing Schedule*)*;*

"Reasonable Adjustments" shall have the meaning given in SR 2.4 of Service Requirement 2 (as defined in the Service Requirements);

"Recipient Party" means the Party which receives or obtains directly or indirectly Confidential Information;

"Reduced Entry Fee" shall have the meaning given in paragraph 2.4 of Schedule 6A (Adaptive Pricing);

“Reduced Extension Entry Fee” shall have the meaning given in paragraph 3.3 of Schedule 6A (Adaptive Pricing);

“Regulated” means the regulation by Ofqual of a qualification which has been Accredited and “**Regulation**” shall be authorised accordingly;

“Relevant Competence” means being a reasonably skilled and competent Awarding Organisation with access to appropriate tools, systems and platforms to operate technical qualifications;

“Relevant Employees” means those employees whose contracts of employment transfer with effect from the Relevant Transfer Date to the Authority or a Replacement Supplier by virtue of the application of TUPE;

“Relevant Requirements” means all applicable Law relating to bribery, corruption and fraud, including the Bribery Act 2010 and any guidance issued by the Secretary of State for Justice pursuant to section 9 of the Bribery Act 2010;

“Relevant Transfer” means a transfer of employment to which TUPE applies;

“Relevant Transfer Date” means in relation to a Relevant Transfer, the date upon which the Relevant Transfer takes place;

“Reminder Notice” means a written notice sent in accordance with clause 4.8 (*Pricing and payments*) given by the Supplier to the Authority providing notification that payment has not been received on time, which must be addressed to the Authority Authorised Representative, must set out the sum due, must reference this Contract and clause 4 (*Pricing and payments*) and attach a copy of the relevant valid invoice;

“Replacement Subcontractor” means a Subcontractor of the Replacement Supplier to whom Transferring Supplier Employees will transfer on a Service Transfer Date (or any Subcontractor of any such Subcontractor);

“Replacement Services” means any services (including the supply of products) which are the same as or substantially similar to any of the Services and which the Authority receives in substitution for any of the Services following the expiry or termination or Partial Termination of this Contract, whether those services are provided by the Authority internally and/or by any third party;

"Replacement Supplier" means any third party provider of Replacement Services appointed by or at the direction of the Authority from time to time, or where the Authority is providing Replacement Services on its own account, shall also include the Authority;

"Replacement TQ" means a technical education qualification forming part of the T Levels Programme to replace either: (i) the TQ which is the subject of this Contract; or (ii) the equivalent technical qualification which is the subject of a contract with a Future Supplier;

"Request for Information" means a request for information or an apparent request for information relating to this Contract or an apparent request for such information under the FOIA or the EIRs;

"Required Insurances" means the insurances that must be held by the Supplier as required by the Authority meeting the requirements set out in Schedule 19 (*Required Insurances*);

"Resource Plan" means the Resource Plan prepared by the Supplier as part of the Supplier's Response in relation to the Supplier Staff that shall be utilised (and the manner in which such Supplier Staff shall be utilised) by the Supplier in the performance of the Services and which, as at the Effective Date, is set out in Schedule 3 (*Implementatio*n), as such plan is, subject to paragraph 2.5 of Part 1 of the Service Requirements, developed and amended from time to time to fully meet the requirements of the Product Description for the "Resource Plan";

"Re-Submission" shall have the meaning given in clause 5.11.2(i) (*Developing the TQ and achieving DfE Approval*);

"**Risk Register"** means the risk register referred to in, and meeting the requirements of, the Product Description for the Risk Register;

"Route" means the broadest category of Occupations in an Occupational Map, typically covering an industrial area;

"Route Panel" means the Authority's panel responsible for managing the development of the TQ Specification, details of which can be found at: https://www.gov.uk/government/publications/t-level-panels-membership;

“**Scheme of Assessment”** means the scheme of assessment referred to in, and meeting the requirements of, the relevant part of the Product Description for the TQ Specification;

“Security Policy” means the Authority's security policy, in force as at the Effective Date (a copy of which has been supplied to the Supplier), as updated from time to time and notified to the Supplier;

“Serious Fraud Office” means the UK Government body named as such as may be renamed or replaced by an equivalent body from time to time;

“Services” means the services as described in the Service Requirements (including the Additional Services);

“**Service Failure”** shall have the meaning given in paragraph 2.2 of Schedule 15 (*Monitoring of Performance*);

“Service Requirements” means the Authority’s requirements for the Services (including the supply of the Products) as set out in Schedule 2 (*Service Requirements*);

“Service Transfer” means any transfer of the Services (or any part of the Services), for whatever reason, from the Supplier or any Subcontractor to a Replacement Supplier or a Replacement Subcontractor;

“Service Transfer Date” means the date of a Service Transfer;

“Skilled Future Supplier” means a Future Supplier with Relevant Competence;

“Social Value” means the additional social benefits that can be achieved in the delivery of the Contract, set out in the Supplier’s Response and/or Supplier’s Tender;

“Special Consideration” shall have the meaning given in SR 2.5 of Service Requirement 2 (as defined in the Service Requirements);

“Specific Change in Law” means a Change in Law that relates specifically to the business of the Authority and which would not affect a Comparable Supply where the effect of that Specific Change in Law on the Services and/or the Products and/or the performance of this Contract is not reasonably foreseeable at the Effective Date. Any change in any Condition of Recognition shall not be a Specific Change in Law;

“**Specification of Content”** means the specification of the content referred to in, and meeting the requirements of, the relevant part of the Product Description for the TQ Specification;

“Staffing Information” means in relation to all persons identified on the Supplier's Provisional Supplier Personnel List or Supplier's Final Supplier Personnel List, as the case may be, such information as the Authority may reasonably request (subject to all applicable provisions of the Data Protection Legislation), but including in an anonymised format:

(a) their ages, dates of commencement of employment or engagement, gender and place of work;
(b) details of whether they are employed, self-employed contractors or consultants, agency workers or otherwise;
(c) the identity of the employer or relevant contracting Party;
(d) their relevant contractual notice periods and any other terms relating to termination of employment, including redundancy procedures, and redundancy payments;
(e) their wages, salaries, bonuses and profit sharing arrangements as applicable;
(f) details of other employment-related benefits, including (without limitation) medical insurance, life assurance, pension or other retirement benefit schemes, share option schemes and company car schedules applicable to them;
(g) any outstanding or potential contractual, statutory or other liabilities in respect of such individuals (including in respect of personal injury claims);
(h) details of any such individuals on long term sickness absence, parental leave, maternity leave or other authorised long term absence;
(i) copies of all relevant documents and materials relating to such information, including copies of relevant contracts of employment (or relevant standard contracts if applied generally in respect of such employees); and
(j) any other Employee Liability Information” as such term is defined in regulation 11 of TUPE;

“Stakeholders” means the Authority, the Department, Skills England, Ofqual, Providers, Employers and members of the Route Panels;

“Standards” means the Occupational Standards, consisting of a description of the Occupation and the outcomes (knowledge, skills and behaviours) which a Student will be expected to attain to successfully achieve competence in that Occupation, as approved and published by the Authority;

“Storage Media” means the part of any device that is capable of storing and retrieving data;

“Student” means an individual undertaking (or who wishes to undertake) a formal programme of study with an Approved Provider for the T Level of which the TQ forms part;

“Student Information” means information or data relating to an individual Student whether or not the Student can be identified from that information or data;

“Student Related Data” means any information or data relating to Students (including any Student Information) and/or any Provider which is generated and/or acquired by and/or otherwise comes into the possession of the Supplier and/or any Supplier Staff as a result of the performance of the Supplier’s obligations under this Contract;

“Sub-Contract” means any contract or agreement (or proposed contract or agreement), pursuant to which a third party:

(a) provides the Services and/or supplies any Products (or any part of them) and/or performs the whole or any part of this Contract;

(b) provides facilities or services necessary for the provision of the Services and/or the supply of any Products (or any part of them) and/or the performs the whole or any part of this Contract; and/or

(c) is responsible for the management, direction or control of the provision of the Services and/or supply of any Products (or any part of them) and/or the performance of the whole or any part of this Contract;

“Subcontractor” means any person other than the Supplier (and/or an Assessor who is self-employed or who provides services to the Supplier through that Assessor’s own personal service company), who is a party to a Sub-Contract and the servants or agents of that person;

“Submission” means, in respect of the relevant Milestone, the Products set out against that Milestone in the third column of the Table in Annex 7 to the Service Requirements;

“Submission Date” means, in respect of the relevant Milestone, the date set out against that Milestone in the second column of the Table in Annex 7 to the Service Requirements;

“Submission Issues Log” means the issues log referred to in, and meeting the requirements of, the Product Description for the Submission Issues Log;

“Subsequent Transfer” has the meaning given in paragraph 8.1 of (*Exit Management*);

"Supplementary Specimen Assessment Materials" means a full suite of sample questions and tasks for the Core Component and Occupational Specialist Component(s) (in addition to the TQ Specimen Assessment Materials), as referred to in Service Requirement 5.1.

“**Supplier Authorised Representative”** means the person referred to in Schedule 20 as such or the representative appointed by the Supplier from time to time in relation to this Contract as notified in writing (which may, in the case of this specific notification, be by email only) to the Authority;

“Supplier Personnel” means all employees of the Supplier (and any subcontractor) who are wholly or mainly engaged in or assigned to the provision of the Services or any relevant part of the Services including the development of the Products;

“Supplier Staff” means all directors, officers, employees, agents, consultants and contractors of the Supplier (including any Assessor who is self-employed or who provides services to the Supplier through that Assessor’s own personal service company), any Subcontractor engaged in the performance of the Supplier's obligations under this Contract and any company or organisation noted in the Supplier’s Tender as forming part of the consortium which submitted the Supplier’s Tender (“**Consortium Member**”) and all directors, officers, employees, agents, consultants and contractors of any such Subcontractor and/or any such Consortium Member engaged in the performance of the Supplier's obligations under this Contract;

“Supplier's Final Supplier Personnel List” means a list provided by the Supplier of all Supplier Personnel whose will transfer under TUPE on the Service Transfer Date;

“Supplier’s Provisional Supplier Personnel List” means a list prepared and updated by the Supplier of all Supplier Personnel who are at the date of the list wholly or mainly engaged in or assigned to the provision of the Services or any relevant part of the Services which it is envisaged as at the date of such list will no longer be provided by the Supplier;

“Supplier’s Response” means that part of the Supplier’s Tender (including any method statements) which is at Schedule 5 (*Supplier’s Response*);

“Supplier’s Tender” means the Supplier’s selection questionnaire and tender responses submitted in response to the Authority’s advertisement in the Find a Tender

Service (as referred to in the Recitals to this Contract) for a provider of the Services and supplier of the Products, as clarified in writing by the Supplier to the Authority prior to the date of this Contract in response to any request for clarification issued by the Authority;

"Supplier Termination Event" means:

(a) the Supplier (i) commits a material Default which is irremediable; or (ii) commits a material Default which is capable of remedy, but which has not been remedied by the Supplier within 30 days of being notified in writing to do so by the Authority;

(b) a Conflict of Interest arises in connection with the delivery of the Services (and/or the supply of the Products) to which no mitigation acceptable to the Authority can be promptly identified;

(c) where a right of termination is expressly reserved in this Contract;

(d) the Supplier is in material Default in respect of any data handling and/or security requirements set out in clauses 13, 18, 19 or Schedule 9 (*Data Handling and Security Management*) (where applicable);

(e) an Insolvency Event occurring in respect of the Supplier;

(f) a change of Control of the Supplier unless:

(i) the Authority has given its prior written consent (not to be unreasonably withheld or conditioned) to the particular change of Control, which subsequently takes place as proposed; or

(ii) the Authority has not served its notice of objection within 6 months of the later of the date on which the change of Control took place or the date on which the Authority was given notice of the change of Control;

(g) a material failure by the Supplier to comply with legal obligations in the fields of environmental, social or labour law;

(h) the departure from the Supplier of any of its senior officers or Key Personnel where the Authority has reasonable grounds to believe that such departure will impact or could potentially impact the delivery of the Services and/or the supply of any Products unless the Authority has not served its notice of objection within 6 months of the date on which the Authority was informed by the Supplier of such departure;

(i) the Supplier assigns, transfers or otherwise disposes of its rights, obligations and/or liabilities or seeks to assign, transfer or otherwise dispose of its rights, obligations and/or liabilities under the whole or any part of this Contract to a third party in breach

of the terms of this Contract (including in breach of the requirements of paragraph 1 of Schedule 8 (*Supply Chain (including approved Subcontractors)*);

(j) the Supplier is in Default under clause 31.1 (*Preventing Fraud, Bribery and Corruption*);

(k) the Supplier provided incorrect or misleading information as part of the Supplier's Tender;

(l) the Supplier or any Subcontractor or Affiliate through its act or omission brings the Authority, the Department and/or Skills England and/or the T Levels Programme into disrepute and/or diminishes the trust the public places in the Authority, the Department and/or Skills England;

(m) the Guarantee ceasing to be valid or enforceable for any reason (without the Guarantee being replaced with a comparable guarantee to the satisfaction of the Authority with the Guarantor or with another guarantor which is acceptable to the Authority);- Not Used

(n) the occurrence of any of the termination grounds under section 78(2) of the Procurement Act 2023 have arisen and the Authority has followed the relevant procedural requirements of section 78 of the Procurement Act;

(o) a Critical Service Failure occurs; or

(p) the Supplier fails to comply with clause 35.2 (*Tax*) or fails to provide details of steps being taken and mitigating factors pursuant to clause 35.2 (*Tax*) which in the reasonable opinion of the Authority are acceptable;

"**Support Materials**" means teaching support materials intended for a Provider or Student audience, such as textbooks, and any other materials which the Authority agrees in writing to be Support Materials;

"**Target Service Level**" means the target performance level set out against the relevant KPI in the third column of the Table attached at Annex 1 to Schedule 15 (*Monitoring of Performance*);

"TQ Service Requirements Explanatory Note" means an explanation of TQs, their purpose and how they are delivered;

"Term" means the period commencing on the Effective Date and ending on the End Date;

"Termination Notice" means a written notice of termination given by one Party to the other, notifying the Party receiving the notice of the intention of the Party giving the notice to terminate this Contract on a specified date and setting out the grounds for termination;

"Third Party" means any supplier of services fundamentally the same as the Services (either in whole or in part) immediately before the Effective Date;

"Third Party IPR" means Intellectual Property Rights owned by a third party which is or will be used by the Supplier for the purpose of providing the Services and/or supplying the Products;

"Transferring Former Supplier Employees" means those employees of the Former Supplier to whom TUPE will apply on a Relevant Transfer Date;

"TQ" means the technical education qualification element of the T Level in respect of the Pathway that is (amongst other things) designed, developed and delivered under this Contract;

"TQ Assignment and Licence" means the assignment and licence in respect of certain Intellectual Property Rights in relation to the TQ in the form set out in Schedule 14 (*Form of Assignment and Licence*);

"TQ Change" means any change or variation to the content of the TQ;

"**TQ Content Updating Schedule**" means the schedule of dates set out in Annex 6 to the Service Requirements (or such other dates as may be agreed by the Authority from time to time) applicable to the relevant Inclusive TQ Change or Exclusive TQ Change (as the case may be);

"**TQ Core Component**" means the core component of the TQ referred to in the Former Supplier's TQ Specification and/or if relevant, the Outline Content;

"**TQ Deliverables"** means:

(a) in the period prior to the Supplier making available the Grade Standard Exemplification Materials referred to in paragraph 6.2.2 of Part 1 of the Service Requirements, the Approved Initial TQ Deliverables and the Approved Guide Standard Exemplification Materials; and

(b) in the period following the Supplier making available the Grade Standard Exemplification Materials referred to in paragraph 6.2.2 of Part 1 of the Service Requirements:

(i) the Approved Initial TQ Deliverables; and

(ii) the Grade Standard Exemplification Materials,

in each case, as amended in accordance with this Contract;

"TQ Development Meeting" shall have the meaning given in clause 5.4 (*Developing the TQ and achieving DfE Approval*);

"**TQ Development Team**" means the team appointed by the Authority from time to time, that is responsible for overseeing and supporting the development of the TQ;

"TQ Live Assessment Materials" shall have the meaning given in Schedule 2 (*Service Requirements*);

"TQ Specification" means the Specification of Content, the Scheme of Assessment and the Approved Provider's Quality Assurance Process;

"TQ Specimen Assessment Materials" means the specimen assessment materials referred to in, and meeting the requirements of, the Product Description for the TQ Specimen Assessment Materials;

"T Level" means the technical study programme known as a "T Level";

"T Level Awarding Organisations" shall have the meaning given in paragraph 1.1 of Schedule 4 (*Co-operation*);

"T Level Branding Guidelines" means the Authority's written guidelines prescribing the permitted form and manner in which the trade marks (the "*Mark*" as defined within the T Level Trade Mark Licence) may be used and setting out how the Supplier branding may be used in relation to materials used in the operation of the TQ or to promote the TQ, a copy of which is set out in the document entitled T Level Branding Guidelines, including any amendments or additions notified by the Authority to the Supplier from time to time, provided that the Authority shall where possible provide reasonable notice in writing to the Supplier of any proposed amendments or additions to such guidelines;

"**T Level Panel"** means the group of Employers, professionals and practitioners appointed to advise on the content of the T Level of which the TQ forms part;

"T Level Trade Mark Licence" means the trade mark licence granted pursuant to Schedule 16 (*Logos and Trademarks – T Level Trade Mark Licence*);

"T Levels Programme" means the programme of technical education in England managed by the Authority and known as "T Levels";

"Transferable Contracts" means Sub-Contracts, or other agreements which are necessary to enable the Authority or any Replacement Supplier to provide the Services and/or develop, maintain or supply the Products or the Replacement Services, including all relevant Documentation;

"Transferring Supplier Employee" means those employees whose contract of employment will be transferred to the Authority or a Replacement Supplier pursuant to TUPE on expiry or termination of this Contract;

"Transition Period" means the period from a Replacement Supplier or Future Supplier commencing any aspects of development or delivery of the TQ to the End Date, e.g. from the point when the Replacement Supplier or Future Supplier has been awarded a contract for provision of the TQ, but while this Contract remains in place for existing Students;

"Transparency Information" has the meaning given to it in clause 20 (*When information can be shared);*

"Transparency Reports" means: (i) the Management Information relating to the Services and performance of this Contract which the Supplier is required to provide to the Authority in accordance with the reporting requirements set out in the Service Requirements; and (ii) the output of any survey commissioned by the Authority in connection with the performance of the Supplier under this Contract;

"Transparent" means that Students and Employers will regard the TQ delivered by a Future Supplier as materially the same as the TQ delivered and operated by the (existing) Supplier;

"TUPE" means the Transfer of Undertakings (Protection of Employment) Regulations 2006 (2006/246) and/or any other regulations or other legislation enacted for the purpose of implementing or transposing the Acquired Rights Directive (77/187/EEC, as amended by Directive 98/50 EC and consolidated in 2001/23/EC) into English law;

"TUPE Information" has the meaning given in paragraph 8.5 of Schedule 12 (*Exit Management*);

"Updated Projection" shall have the meaning given in paragraph 2.1 of Schedule 6A (Adaptive Pricing);

“Variation” means any variation or change to this Contract which is not an Inclusive TQ Change;

“Variation Form” means the form set out in Schedule 11 (*Change Management*);

“VAT” means value added tax in accordance with the provisions of the Value Added Tax Act 1994; and

“Working Day” means any day other than a Saturday or Sunday or public holiday in England and Wales.

Schedule 2

Service Requirements

The content for this Schedule is as below.

Service Requirements

GEN 2 WAVE 3 MIR TQ Spec

Schedule 2

Service Requirements

Schedule 2

Service Requirements

Definitions

In this Service Requirements, the following terms shall have the following meanings:

"**Appeal**" shall have the meaning given in SR 8.2 in Service Requirement 8;

"**Approved Assessment Strategy**" means the Assessment Strategy approved by the Authority in accordance with clause 5.13 (*Developing the TQ and achieving DfE Approval*) or clause 8 (*TQ Changes*) (as the case may be), subject to paragraph 2.6 of Part 1 of the Service Requirements, as amended from time to time in accordance with this Contract;

"**Approved Guide Standard Exemplification Materials**" means the Guide Standard Exemplification Materials approved by the Authority in accordance with clause 5.13 (*Developing the TQ and achieving DfE Approval*) subject to paragraph 2.6 of Part 1 of the Service Requirements, as amended from time to time in accordance with this Contract;

"**Component**" means the TQ Core Component or any Occupational Specialist Component (as the case may be) and "**Components**" shall mean both or all of them (as the context may require);

"**Employer Set Project"** means a project set collaboratively between the Supplier and Employers, as more particularly referred to in Service Requirement 2;

"**External Examination"** means each assessment by examination which is:

(a) set by the Supplier;

(b) designed to be taken simultaneously by all Students taking the relevant assessment at a time (subject to compliance with the requirements of the Key Dates Schedule for the relevant Academic Year) determined by the Supplier;

(c) taken under conditions specified by the Supplier (including conditions relating to the supervision of Students taking the relevant assessment and the duration of the assessment); and

(d) marked by the Supplier.

"**First Teach Cohort**" means the first group of Students to be assessed on the TQ;

"**Guided Learning**" means the activity of a Student being taught or instructed by, or otherwise participating in education or training under the immediate guidance or supervision of a lecturer, supervisor, tutor or other appropriate provider of education or training. For these purposes the activity of 'participating in education or training' shall be treated as including the activity of being assessed if the assessment takes place under the immediate guidance or supervision of a lecturer, supervisor, tutor or other appropriate provider of education or training;

"**Occupational Entry Competence**" means that level of competence that:

(a) signifies that a Student is well-placed to develop full occupational competence, with further support and development, once in employment;

(b) is as close to full occupational competence as can be reasonably expected of a Student studying the TQ in a classroom-based setting (e.g. in the classroom, workshops simulated working and (where appropriate) supervised working environments); and

(c) signifies that a Student has achieved the level for a pass in relation to the relevant Occupational Specialist Component;

"**Qualification Purpose**" means the purpose of the TQ set out in Annex 1 of this Service Requirements;

"**Service Definition Table**" means the Table set out in Part 2 of this Service Requirements;

"**Service Requirement 1**" means that part of the Services (including the requirements for and the outcomes to be achieved by the Supplier as a result of the performance of that part of the Services) set out or referred to under the heading of "Service Requirement 1: Designing, developing and managing TQ Content" in the Service Definition Table;

"**Service Requirement 2**" means that part of the Services (including the requirements for and the outcomes to be achieved by the Supplier as a result of the performance of that part of the Services) set out or referred to under the heading of "Service Requirement 2: Assessment Design and Delivery" in the Service Definition Table;

"**Service Requirement 3**" means that part of the Services (including the requirements for and the outcomes to be achieved by the Supplier as a result of the performance of that part of the Services) set out or referred to under the heading of "Service Requirement 3: Grading and Awarding" in the Service Definition Table;

"**Service Requirement 4**" means that part of the Services (including the requirements for and the outcomes to be achieved by the Supplier as a result of the performance of that part of the Services) set out or referred to under the heading of "Service Requirement 4: Provider Approval" in the Service Definition Table;

"**Service Requirement 5**" means that part of the Services (including the requirements for and the outcomes to be achieved by the Supplier as a result of the performance of that part of the Services) set out or referred to under the heading of "Service Requirement 5: Provider Support" in the Service Definition Table;

"**Service Requirement 6**" means that part of the Services (including the requirements for and the outcomes to be achieved by the Supplier as a result of the performance of that part of the Services) set out or referred to under the heading of "Service Requirement 6: Student registration and Student entry" in the Service Definition Table;

"**Service Requirement 7**" means that part of the Services (including the requirements for and the outcomes to be achieved by the Supplier as a result of the performance of that part of the Services) set out or referred to under the heading of "Service Requirement 7: TQ Results" in the Service Definition Table;

"**Service Requirement 8**" means that part of the Services (including the requirements for and the outcomes to be achieved by the Supplier as a result of the performance of that part of the Services) set out or referred to under the heading of "Service Requirement 8: TQ Post-Results Services" in the Service Definition Table;

"**Service Requirement 9**" means that part of the Services (including the requirements for and the outcomes to be achieved by the Supplier as a result of the performance of that part of the Services) set out or referred to under the heading of "Service Requirement 9: Reporting" in the Service Definition Table;

"**TQ Critical Path Diagram**" means the diagram setting out the critical path for the design, development and delivery of the TQ attached at Annex 4 to the Service Requirements;

“**TQ Live Assessment Materials**” means the live assessment materials referred to in, and meeting the requirements of, the Product Description for the TQ Live Assessment Materials.

Part 1 – Overview of the Service Requirements

1 Introduction

1.1 This Part 1 of this Service Requirements sets out:

1.1.1 at paragraph 2, that part of the Services relating to the design, development and delivery of the Initial TQ Deliverables and Guide Standard Exemplification Materials and the review and update of such Initial TQ Deliverables and/or the TQ Deliverables (as the case may be), including the Initial Development Services and the Ongoing Development Services;

1.1.2 at paragraph 3, that part of the Services relating to the Provider Approval and monitoring services (as detailed in that paragraph 3);

1.1.3 at paragraph 4, that part of the Services relating to the support to be provided to Eligible Providers and Approved Providers (as detailed in that paragraph 4);

1.1.4 at paragraph 5, that part of the Services relating to Student registration and Student assessment entry (including Additional Services) (as detailed in that paragraph 5);

1.1.5 at paragraph 6, that part of the Services relating to the design and delivery of the TQ Live Assessment Materials (as detailed in that paragraph 6);

1.1.6 at paragraph 7, that part of the Services relating to grading and awarding in respect of each Student's performance in respect of the TQ Live Assessment Materials (as detailed in that paragraph 7);

1.1.7 at paragraph 8, that part of the Services relating to the provision of results (as detailed in that paragraph 8);

1.1.8 at paragraph 9, that part of the Services relating to the provision of Post-Results Services (including Additional Services) (as detailed in that paragraph 9);

1.1.9 at paragraph 10, that part of the Services relating to the reporting of Management Information (as detailed in that paragraph 10); and

1.1.10 at paragraph 11, such other services as may be necessary to support and/or are associated with the provision of the Services (as detailed in that paragraph 11).

1.2 Paragraphs 2 (*Initial TQ Deliverables and development services*) to 9 (*TQ Post-Results Services*) shall be read in conjunction with the TQ Critical Path Diagram.

1.3 The Supplier shall design, develop, obtain DfE Approval for, and deliver to Approved Providers in England, the technical qualification element of the T Level for the relevant Pathway under this Contract, including, without prejudice to its obligations in clause 3.1.8 (*How the Services must be supplied*), performing all of the Services set out in this Service Requirements.

1.4 Unless otherwise stated in this Service Requirements, the Supplier shall organise and deliver the Services:

1.4.1 to ensure that the activities contemplated by the Key Dates Schedule for the relevant Academic Year and/or the TQ Content Updating Schedule (and which rely on the performance of the whole or any part of the Services) can be carried out and completed in accordance with such Key Dates Schedule and/or the TQ Content Updating Schedule (as the case may be);

1.4.2 in accordance with the Implementation and Delivery Plan;

1.4.3 in accordance with the Resource Plan;

1.4.4 in accordance with the Approved Assessment Strategy; and

1.4.5 (at all times) taking into account the aims of the Qualification Purpose.

1.5 The Supplier shall, subject to paragraphs 2.5 and 2.6 (*Initial TQ Deliverables and development services*) and paragraph 6.3 (*TQ live assessment design and delivery*) and without prejudice to paragraph 2.1 to 2.4 (*Initial TQ Deliverables and development services*) (inclusive), provide a copy of any Products that are developed, amended, updated and/or supplemented from time to time by the Supplier in accordance with this Contract to the Authority as soon as reasonably practicable following such development, amendment, update and/or supplement.

1.6 If there is any conflict and/or inconsistency between the provisions of this Service Requirements and the Conditions of Recognition, the Conditions of Recognition shall prevail.

1.7 Without prejudice to paragraph 1.4.1, the Supplier shall organise and deliver the Services to ensure that all applicable parts of the Services are provided at such times and in such manner as shall be necessary to facilitate the delivery of the number of assessment series for the TQ as shall be contemplated by the Key Dates Schedule for the relevant Academic Year, subject always to the provisions of paragraphs 1.8 to 1.10 (inclusive).

1.8 The Supplier shall ensure that there shall be at least one, but not more than two, assessment series in each Academic Year in respect of each of the assessments for:

1.8.1 the TQ Core Component (comprising the External Examination and the Employer Set Project); and

1.8.2 the Occupational Specialist Components.

1.9 The Supplier acknowledges that the assessments in each Academic Year for the TQ Core Component and the Occupational Specialist Components referred to in paragraph 1.8 may be, but are not required to be, held in the same assessment series and so therefore can be for example:

1.9.1 provided in a single assessment series (encompassing both such assessments for the TQ Core Component and the Occupational Specialist Components); or

1.9.2 provided in two assessment series (for each of such assessments for the TQ Core Component and the Occupational Specialist Components) being a total of four assessment series.

1.10 The Supplier shall ensure that:

1.10.1 each Student takes all of the assessments for the TQ Core Component referred to in paragraph 1.8.1;

1.10.2 each Student takes all of the assessments for each individual Occupational Specialist Component referred to in paragraph 1.8.2 in the same assessment series;

1.10.3 a Student may, subject to paragraphs 1.10.1 and 1.10.2, take the assessments for the TQ Core Component and the Occupational Specialist Components referred to in paragraph 1.8 in different assessment series (including assessment series in different Academic Years); and

1.10.4 its approach to the scheduling of the assessments shall be set out in its Assessment Strategy.

2 Initial TQ Deliverables and development services

Initial Development Services

2.1 Without prejudice to the Supplier's obligations in clause 3.1 (*How the Services must be supplied*) and clause 5 (*Developing the TQ and achieving DfE Approval*), the Supplier shall design, develop and deliver the Initial TQ Deliverables in accordance with (and meeting all of the requirements of):

2.1.1 the Product Description for each item forming part of the Initial TQ Deliverables;

2.1.2 the Former Supplier's TQ Specification and/or, if relevant, the Outline Content;

2.1.3 the requirements set out in the third column of Service Requirement 1, Service Requirement 2, Service Requirement 3 and Service Requirement 4;

2.1.4 the Implementation and Delivery Plan (including the Supplier's obligation to work with and consult (and take into account the outcome of such working with and consultation of) a representative sample of Providers and Employers (as required by that Implementation and Delivery Plan);

2.1.5 the Resource Plan;

2.1.6 the Assessment Strategy; and

2.1.7 Annex 7 (*Initial Development Milestones*) to this Service Requirements,

and, in each case, to ensure the delivery of a high quality technical education qualification element of the T Level for the relevant Pathway and that the outcomes referred to in the first column of Service Requirement 1, Service Requirement 2, Service Requirement 3 and Service Requirement 4 are achieved (the "**Initial Development Services**").

2.2 The Supplier shall procure that, without prejudice to its obligations in clause 5.13.2 (*Developing the TQ and achieving DfE Approval*), the Initial TQ Deliverables (meeting all of the requirements of paragraph 2.1) shall be delivered to the Authority on or prior to the Final Approval Milestone Date.

Ongoing Development Services

2.3 The Supplier shall procure that (without prejudice to the Supplier's obligations in clause 3.1 (*How the Services must be supplied*) and clause 5.3 (*Developing the TQ and achieving DfE Approval*) and notwithstanding the achievement of DfE Approval in respect of the Initial TQ Deliverables) throughout the Term the TQ Deliverables meet (and continue to meet) all of the requirements of:

2.3.1 the Product Description for each item forming part of the TQ Deliverables;

2.3.2 the Former Supplier's TQ Specification and, if relevant, the Outline Content;

2.3.3 the requirements set out in the third column of Service Requirement 1, Service Requirement 2, Service Requirement 3 and Service Requirement 4;

2.3.4 the Implementation and Delivery Plan (including the Supplier's obligation to work with and consult (and take into account the outcome of such working with and consultation of) a representative sample of Providers and Employers (as required by that Implementation and Delivery Plan));

2.3.5 the Resource Plan;

2.3.6 the Approved Assessment Strategy; and

2.3.7 clause 8 (*TQ Changes*) and Annex 6 (*TQ Content Updating Schedule*) to this Service Requirements,

and in each case, to ensure the continued delivery of a high quality technical education qualification element for the T Level for the relevant Pathway and that the outcomes referred to in the first column of Service Requirement 1, Service Requirement 2, Service Requirement 3 and Service Requirement 4 are achieved (the "**Ongoing Development Services**").

2.4 The Supplier shall procure that the TQ Deliverables (as amended, supplemented or replaced in accordance with clause 8 (*TQ Changes*) and Annex 6 (*TQ Content Updating Schedule*) to this Service Requirements) shall be delivered to the Authority on or prior to the applicable date specified on the Key Dates Schedule for the relevant Academic Year or TQ Content Updating Schedule (as applicable).

Updating the Implementation and Delivery Plan and the Resource Plan

2.5 Subject to the provisions of paragraph 1 *(Key Personnel)* of Schedule 7 *(Staff including Key Personnel)*, the Parties acknowledge and agree that the Implementation and Delivery Plan and the Resource Plan are intended to be live documents that may need to flex from time to time to ensure the continued successful delivery of the Services to the standards required by this Contract and the Supplier shall, throughout the Term, review, amend and update (as necessary) each of the Implementation and Delivery Plan and the Resource Plan to ensure that such Implementation and Delivery Plan and Resource Plan takes into account (and (where applicable) mitigates the effects of) all relevant factors that have impacted or may impact upon the successful delivery of the Services to the standards required by this Contract, provided always that where any such review, amendment and/or update would (or is reasonably likely to) operate to reduce and/or otherwise diminish the Authority's rights and/or remedies and/or the Supplier's liabilities contemplated by this Contract (including where, but for such review, amendment and/or update, the Supplier would (or would be reasonably likely to) be in Default under this Contract), the Supplier shall:

2.5.1 submit such proposed reviewed, amended and/or updated Implementation and Delivery Plan and/or Resource Plan (as the case may be) to the Authority for Approval; and

2.5.2 where the Supplier does not obtain such Approval, the Implementation and Delivery Plan and/or Resource Plan (as the case may be) shall be deemed not to have been so reviewed, amended and/or updated to the extent that such review, amendment and/or update would (or would be reasonably likely to) operate to so reduce the Authority's rights and/or remedies and/or the Supplier's liabilities under this Contract.

<u>Updating the Approved Initial TQ Deliverables and TQ Deliverables</u>

2.6 The Supplier shall, notwithstanding the achievement of DfE Approval in relation to the Initial TQ Deliverables and subject to the provisions of clauses 8.4 and 8.5 (*TQ Changes*) and Annex 6 (*TQ Content Updating Schedule*) to this Service Requirements (which shall apply in respect of the annual review referred to in such clauses 8.4 and 8.5 (*TQ Changes*)), be required to keep under review, and entitled to amend and update, the Approved Initial TQ Deliverables and the TQ Deliverables throughout the Term to ensure that the Supplier continues to meet its obligations under paragraph 2.3, provided always that the Supplier shall:

2.6.1 notify the Authority (as part of the Operational Delivery Report) of any proposed amendments and/or updates to such Approved Initial TQ Deliverables and/or TQ Deliverables; and

2.6.2 comply with the applicable requirements of clauses 8.10 and 8.11 (*TQ Changes*) prior to making available any such amended and/or updated Approved Initial TQ Deliverables and/or TQ Deliverables to Approved Providers and provided further that the words "*by the relevant date prescribed by the TQ Content Updating Schedule*" in such clauses 8.10 and 8.11 shall be deemed to be deleted for the purposes of this paragraph 2.6.

3 TQ Provider Approval and monitoring services

3.1 Without prejudice to the Supplier's obligations in clause 3.1 (*How the Services must be supplied*), the Supplier shall, following DfE Approval:

3.1.1 provide that part of the Services referred to in the third column of Service Requirement 4 to ensure that the outcomes referred to in the first column of Service Requirement 4 are achieved; and

3.1.2 monitor the delivery by Approved Providers of the TQ (and the Approved Provider's continuing satisfaction of all of the requirements of the Provider Approval Criteria) in accordance with the monitoring arrangements set out in the Approved Assessment Strategy.[1]

3.2 Without prejudice to the Supplier's obligations in clause 3.1 (*How the Services must be supplied*) and paragraph 10.1 (*Reporting*) below, the Supplier shall notify the Authority (and provide full details of the circumstances) as soon as reasonably practicable where:

3.2.1 it reasonably believes that an Eligible Provider may not become an Approved Provider;

3.2.2 an Eligible Provider does not become an Approved Provider;

3.2.3 it reasonably believes that an Approved Provider may cease to be an Approved Provider;

3.2.4 an Approved Provider ceases to be an Approved Provider; and/or

[1] These proposed arrangements should form part of the Supplier Response.

3.2.5 the monitoring referred to in paragraph 3.1.2 reveals (and/or the Supplier otherwise becomes aware of):

(i) any failure by the Approved Provider to comply with the Approved Provider's Quality Assurance Process in the applicable Provider Contract;

(ii) any event, matter or circumstance which has had (or is reasonably likely to have) an adverse impact on Students (including as a result of an Appeal referred to in Service Requirement 8) and/or shall or may bring the T Level Programme into disrepute; and/or

(iii) any malpractice and/or maladministration on the part of the Approved Provider (including where any confidential TQ Live Assessment Materials (and/or the content of or information about such TQ Live Assessment Materials) is lost, stolen or transmitted).

3.3 The Supplier shall, as soon as reasonably practicable following the occurrence or identification of any matter referred to in paragraph 3.2, notify the Eligible Provider or Approved Provider (as the case may be) of any steps that are necessary to be taken by such Eligible Provider or Approved Provider (as the case may be) to remedy such matters and/or such failure and shall (as soon as reasonably practicable) notify the Authority (and provide full details) of such steps, together with details of the action that the Supplier will be taking to:

3.3.1 procure that the Eligible Provider or Approved Provider (as the case may be) takes such steps; and/or

3.3.2 mitigate the effects of such failure and/or matters.

3.4 The Supplier shall:

3.4.1 use all reasonable endeavours to procure that the Eligible Provider or Approved Provider (as the case may be) takes the steps referred to in paragraph 3.3; and

3.4.2 take the action referred to in paragraph 3.3,

together with, in either case, such further steps and/or action as the Authority may reasonably require following the notification referred to in paragraph 3.3.

3.5 The Supplier shall (in such manner (including as to timing) as the Authority may reasonably require) keep the Authority updated as to:

3.5.1 the progress by the Eligible Provider or Approved Provider (as the case may be) with the taking of the steps referred to in paragraph 3.3 (including (where applicable) whether the event, matter or circumstance giving rise to the requirement for the taking of such steps has been (or is reasonably likely to be) remedied); and

3.5.2 the action that the Supplier is taking and has taken in accordance with paragraph 3.4,

provided always that where the Supplier fails to comply with its obligations in paragraphs 3.2 to 3.4 (inclusive), such failure shall (notwithstanding the provisions of clauses 14.2.1 to 14.2.10 (*What may happen if there are issues with your provision of the Services*)) be deemed to give rise to a right for the Authority to issue written notification of Designated Action to the Supplier, to which the provisions this Contract (including clause 14.2 (*What may happen if there are issues with your provision of the Services*)) shall apply.

4 TQ Provider support services

4.1 Without prejudice to the Supplier's obligations in clause 3.1 (*How the Services must be supplied*) and Schedule 4 (*Co-operation*), the Supplier shall, throughout the Term, provide that part of the Services referred to in, and in accordance with, the third column of Service Requirement 5 to:

4.1.1 ensure that the outcomes referred to in the first column of Service Requirement 5 are achieved; and

4.1.2 following achievement of DfE Approval, facilitate the implementation by Providers of the TQ in accordance with the Approved TQ Specification.

4.2 The Supplier shall, subject always to clause 4.12 and 4.13 (*Pricing and payments*), in respect of:

4.3 the Fees for the first Academic Year for the first Exclusive Cohort, make available details of the Fees to Eligible Providers and Approved Providers as soon as reasonably practicable;

4.4 the Fees for the second Academic Year, make available details of the Fees to Eligible Providers and Approved Providers no later than 30 April prior to the start of the second Academic Year; and

4.5 the third and each subsequent Academic Year, publish details of the Fees to Approved Providers no later than 30 April prior to the start of the relevant Academic Year.

5 <u>Student registration and Student entry</u>

5.1 The Supplier shall procure that Approved Providers have processes in place (and implement such processes) to ensure that, on or prior to the relevant date specified on the Key Dates Schedule for the relevant Academic Year, each Student is correctly registered for the TQ and in the manner contemplated by Service Requirement 6.

5.2 The Supplier shall procure that Approved Providers have processes in place (and implement such processes) to ensure that, on or prior to the relevant date specified on the Key Dates Schedule for the relevant Academic Year, each Student is correctly entered for assessment in respect of:

5.2.1 the TQ Core Component; and

5.2.2 each Occupational Specialist Component,

for which they are undertaking assessment.

5.3 The Supplier shall, following a request from an Approved Provider, provide the Additional Services referred to as “Late entry or entry amendment”, “Late registration or registration amendment”, “Very late entry or entry amendment” or “Very late registration or registration amendment” (as the case may be) in accordance with the applicable requirements set out against that Additional Service in Annex 10 (*Additional Services*) to this Service Requirements.

5.4 Without prejudice to the Supplier’s obligations in clause 3.1 (*How the Services must be supplied*) and paragraph 10.1 (*Reporting)* below, the Supplier shall ensure that, following DfE Approval and (as applicable) in each Contract Month throughout the remainder of the Term, details of the registrations and assessment entries referred to in paragraph 5.1 and 5.2 are reported to the Authority in the Management Information that is provided in respect of the Contract Month in which such registrations and/or entries are made, such reports to meet the requirements set out in the third column of each of Service Requirement 6 and Service Requirement 9 to ensure that the

outcomes referred to in the first column of each of Service Requirement 6 and Service Requirement 9 are achieved.

5.5 Without prejudice to the Supplier's obligations in clause 3.1 (*How the Services must be supplied*) and elsewhere in this Service Requirements, the Supplier shall, as soon as reasonably practicable after:

5.5.1 becoming aware of any Approved Provider that is not registering any Students for the TQ (as contemplated by paragraph 5.1) and/or not entering Students for assessment (as contemplated by paragraph 5.2); and/or

5.5.2 becoming concerned as to the number of Students being registered for the TQ and/or being entered for assessment,

notify the Authority (together with full details) of such matter and/or concern.

6 TQ live assessment design and delivery

6.1 The Supplier shall (without prejudice to its obligations in clause 3.1 (*How the Services must be supplied*)):

6.1.1 on or prior to the relevant date specified on the Key Dates Schedule for the relevant Academic Year, design, develop and make available to Approved Providers the TQ Live Assessment Materials;

6.1.2 during the period specified on the Key Dates Schedule for the relevant Academic Year, administer the delivery by the Approved Providers of the TQ Live Assessment Materials and mark (or (where applicable) procure the marking and/or Moderation of) Student assessment evidence generated by the application and/or use (as the case may be) of such TQ Live Assessment Materials; and

6.1.3 during the period specified on the Key Dates Schedule for the relevant Academic Year and following a request from an Approved Provider, administer the delivery by that Approved Provider of the TQ Live Assessment Materials in respect of the Additional Services referred to as "Retakes" in accordance with the applicable requirements set out against that Additional Service in Annex 10 (*Additional Services*) of this Service Requirements and mark (or (where applicable) procure the marking and/or Moderation of) Student assessment evidence generated by the application and/or use (as the case may be) of such TQ Live Assessment Materials,

in each case, in accordance with the then current Approved Assessment Strategy, subject to paragraph 6.2, the then current Approved Guide Standard Exemplification Materials or Grade Standard Exemplification Materials (as the case may be) and the requirements set out in the third column of Service Requirement 2 so as to ensure that the outcomes referred to in the first column of Service Requirement 2 are achieved.

6.2 The Supplier shall:

6.2.1 in respect of the First Teach Cohort for the relevant element of the Occupational Specialist Component, require the implementation and use by Approved Providers (including any assessors employed or engaged by any such Approved Provider and any Moderators where permitted in accordance with the Approved Assessment Strategy) and Assessors of the Approved Guide Standard Exemplification Materials for the purposes of assessing each Student's performance in respect of the TQ Live Assessment Materials; and

6.2.2 following grading of Student performance in respect of the TQ Live Assessment Materials undertaken by the First Teach Cohort of the relevant element of the Occupational Specialist Component and for each subsequent Cohort, develop, make available and require the implementation and use by Approved Providers (including any assessors employed or engaged by any such Approved Provider and any Moderators where permitted in accordance with the Approved Assessment Strategy) and Assessors of the Grade Standard Exemplification Materials.

6.3 The Supplier shall provide a copy of the TQ Live Assessment Materials to the Authority as soon as reasonably practicable following the date on which such TQ Live Assessment Materials are first made available to Students.

7 TQ grade awarding

7.1 Following completion of the live assessments referred to in paragraphs 6.1.2 and 6.1.3 (*TQ live assessment design and delivery*) in the relevant Academic Year, the Supplier shall (as soon as reasonably practicable but not later than the date specified on the Key Dates Schedule for the relevant Academic Year for such live assessments for that Academic Year) assign a grade to each Student (to reflect the relevant marks awarded to each such Student) in respect of their performance in the assessment for the TQ Core Component and each Occupational Specialist Component that each such Student has undertaken in accordance with the requirements set out in the third

column of Service Requirement 3 and so as to ensure that the outcomes referred to in the first column of Service Requirement 3 are achieved.

8 TQ results

8.1 The Supplier shall (as soon as reasonably practicable following completion of its obligations in paragraph 7.1 (*TQ grade awarding*), but not later than the date specified on the Key Dates Schedule for the relevant Academic Year), provide the results for each Student in the Cohort to the Authority or to the Authority's nominee (as notified by the Authority to the Supplier from time to time) in accordance with paragraph 8.2, such results to include details of:

8.1.1 the mark and grade awarded for the TQ Core Component;

8.1.2 the mark and grade awarded for each Occupational Specialist Component; and

8.1.3 such information and/or data as is required (including grade boundaries) by the Authority to award an overall grade for the T Level,

in each case, in respect of each TQ assessment that the relevant Student has undertaken.

8.2 Without prejudice to the Supplier's obligations in clause 3.1 (*How the Services must be supplied*) and paragraph 10.1 (*Reporting*) below, the Supplier shall ensure that the results referred to in paragraph 8.1 are provided to the Authority or to the Authority's nominee (as notified by the Authority to the Supplier from time to time) and reported to the Authority in the Management Information that is provided in respect of the Contract Month in which such results are required to be provided in accordance with paragraph 8.1, such results and report to meet the requirements set out in the third column of each of Service Requirement 7 and Service Requirement 9 to ensure that the outcomes referred to in the first column of each of Service Requirement 7 and Service Requirement 9 are achieved.

8.3 The Supplier shall (on the date specified on the Key Dates Schedule for the relevant Academic Year) provide to the Approved Provider a breakdown of attainment to allow any Approved Provider and/or Student to make informed decisions about applications for (amongst other things) marking reviews and/or appeals (including a Review of Marking and/or Appeal as referred to in Annex 10 (*Additional Services*) to this Service Requirements), such breakdown (subject always to the provisions of clauses 13.10 to

13.12 (*Intellectual Property Rights*) (inclusive)) to be presented in such manner and/or format as shall not be capable of being regarded, interpreted and/or represented as a formal qualification certificate or statement of achievement.

9 TQ Post-Results Services

9.1 The Supplier shall, following the provision of the results referred to in paragraph 8.1 (*TQ results*) and, in respect of each Cohort, for a period expiring at the end of 2 Academic Years following the end of the final Academic Year for each such Cohort:

9.1.1 respond to enquiries about results; and

9.1.2 following a request from an Approved Provider made in accordance with the applicable Key Dates Schedule(s) referred to in paragraph 9.2, provide the relevant Additional Services requested by that Approved Provider (other than the Additional Services referred to in paragraph 5.3 (*Student registration and Student entry*) and 6.1.3 (*TQ live assessment design and delivery*), to which the provisions of those paragraphs shall apply) in accordance with the applicable requirements set out against the relevant Additional Services in Annex 10 (*Additional Services*) to this Service Requirements, (including as referred to in, and in accordance with, the third column of Service Requirement 8 to ensure that the outcomes referred to in the first column of Service Requirement 8 are achieved).

9.2 The Parties acknowledge and agree that the time period within which an Approved Provider may request the provision of the Additional Services referred to in paragraph 9.1.2 in relation to a Student that has undertaken an assessment (including an assessment that is a "Retake", as referred to in Annex 10 (*Additional Services*)) in an assessment series (the "**Relevant Assessment Series**") shall be as set out in the Key Dates Schedule(s) for the relevant Academic Year(s) applicable to the Relevant Assessment Series (including any Key Dates Schedule applicable to and/or regulating the provision of Additional Services in respect of assessments undertaken in the Relevant Assessment Series), provided always that nothing in this paragraph 9.2 shall operate to:

9.2.1 prevent or restrict (or be deemed to give rise to a right of the Supplier to prevent or restrict) any "Retakes" from being undertaken (or from being requested to be undertaken) in accordance with paragraph 6.1.3; and/or

9.2.2 extend the period referred to in paragraph 9.1.

10 Reporting

10.1 The Supplier shall (without prejudice to its obligations in clause 3.1 (*How the Services must be supplied*)) in each Contract Month throughout the Term, report to the Authority in accordance with (and provide such information as is required by) the requirements set out in the third column of Service Requirement 9 to ensure that the outcomes referred to in the first column of Service Requirement 9 are achieved.

11 Overarching services

11.1 The Supplier shall:

11.1.1 maintain, update and provide to the Authority (as required by clause 5.5.1 and paragraph 3.1 of Schedule 15 (*Monitoring of Performance*)) each of the Risk Register and the Issues Log;

11.1.2 implement, carry out and complete such steps (and within such time) as the Authority shall reasonably require arising out of the review of the Risk Register and/or the Issues Log pursuant to clause 5.5.1 (*Developing the TQ and achieving DfE Approval*) and paragraph 3.1 of Schedule 15, (*Monitoring of Performance*) provided always that where the Supplier fails to implement, carry out and complete such steps in accordance with such requirements (including within such time), such failure shall (notwithstanding the provisions of clauses 14.2.1 to 14.2.10 (*What may happen if there are issues with your provision of the Services*)) be deemed to give rise to a right for the Authority to issue written notification of Designated Action to the Supplier, to which the provisions of this Contract (including clause 14.2 (*What may happen if there are issues with your provision of the Services*)) shall apply.

11.2 The Supplier shall provide all of the back-office systems and business processes necessary to enable the delivery of the Services, including IT systems, data security systems, accounting and administrative services.

11.3 The Supplier shall:

11.3.1 actively promote the T Level for which it is the TQ provider, coordinated in partnership with, and with the Approval of, the Authority; and

11.3.2 adhere to the Authority's guidelines in respect of all publicity and marketing material produced by the Supplier (or its Subcontractors) in relation to the T Level for which it is the TQ provider.

11.4 The Supplier shall, following any reasonable request from the Authority:

11.4.1 participate in and support any promotional activities intended to increase the uptake of T Levels by Providers and/or Students; and

11.4.2 without prejudice to its obligations in Schedule 4 (*Co-operation*) and Schedule 15 (*Monitoring of Performance*), attend and participate in any such meetings as the Authority may reasonably convene from time to time in connection with the T Levels Programme.

12 Efficiency

NOT USED

13 Social Value Commitments

13.1 The Supplier must ensure it takes reasonable measures to meets its Social Value commitments, in full compliance with its response to Q9.7 of the Award Questionnaire in their tender submission.

Part 2 - Service Definition Table

This Part 2 sets out the outcomes each Service must deliver and the minimum requirements the Supplier must meet when delivering each Service.

Service Requirement 1: Designing, developing and managing TQ content		
Outcomes The Specification of Content is sufficiently clear and appropriately detailed to ensure Approved Providers can properly prepare Students for the TQ assessments. The knowledge, understanding, skills and behaviours specified in the Former Supplier's TQ Specification and, if relevant, the Outline Content in relation to the TQ Core Component are up-to-date and have been validated by employers to ensure that the TQ has continued currency among	**SR 1.1** Maintenance of the Specification of Content	1 **During the Initial Development Services, any removal of TQ Specification material from the Specification of Content must be justified and validated by a sufficient and representative sample of Employers.** Where the Supplier considers that it is necessary to remove content present in the Former Supplier's TQ Specification, it shall provide a clear and detailed rationale as part of its Assessment Strategy included with the Submission for Interim Milestone 1 (and any subsequent milestones) to the Authority. Evidence from a representative sample of employers relevant to the sector must also be provided to support any proposals to remove any TQ Specification material from the Specification of Content. The Authority shall consider whether such content may be removed from the Specification of Content, provided always that the Authority's decision as to whether such content may be removed from the Specification of Content shall be final. 2 **During the Initial Development Services, the inclusion of additional material must be justified and validated by a sufficient and representative sample of Employers as agreed by the Authority.** The Supplier shall ensure that the Specification of Content does not include entirely new content, as distinct from updated content, that is not included in the Former supplier's TQ Specification, unless otherwise agreed by the Authority. Where the Supplier considers that it is necessary to include entirely new content, it shall provide a clear and detailed rationale as part of its Assessment Strategy included with the Submission for Interim Milestone 1 (and any subsequent milestones) to the Authority. Evidence from a representative sample of employers relevant to the sector must also be provided to support any proposals to remove any TQ Specification material from the Specification of Content. The Authority shall consider whether such new content may be included as part of the Specification of Content, provided always that the Authority's decision as to whether such new content may be included as part of the Specification of Content shall be final. The Supplier must show that new content must be covered at an appropriate depth for a level 3 qualification.

Employers and other end-users (including higher education providers). The knowledge, understanding, skills and behaviours specified in the Former Supplier's TQ Specification and, if relevant, the Outline Content in relation to each Occupational Specialist Component are up-to-date and ensure that the TQ has continued currency among Employers and other end-users (including higher education providers).		3 **During the delivery period the Supplier must ensure that the Specification of Content:** (a) enables accurate interpretation of the Specification of Content by Approved Providers (including to facilitate a clear and consistent understanding by Approved Providers of what is required to be taught and assessed for the TQ and to enable Approved Providers to determine (i) the level of competence required for staff who assess learning and (ii) any other physical requirements (such as facilities and hardware) integral to successful learning for the TQ); (b) supports Student progression and adaptability; (c) enables Students to achieve Occupational Entry Competence in relation to each Occupational Specialist Component; and (d) ensures that English, mathematics and digital** content is integrated within the rest of the content in such manner as shall ensure such content is delivered and assessed in appropriate occupationally specific contexts. 4 **Components should follow the same structure as set out in the Former Supplier's TQ Specification.** The Supplier shall not move elements of the Former Supplier's TQ Specification which relate to one Component into another Component, unless otherwise agreed by the Authority. Where the Supplier considers that it is necessary to move content from one Component to another, it shall provide a clear and detailed rationale as part of its Assessment Strategy for Submission at Interim Milestone 1 to the Authority and the Authority shall consider whether such content may be moved, provided always that the Authority's decision as to whether such content may be moved shall be final. 5 **The TQ has two types of Component.** The Supplier shall ensure that: (e) the TQ has only two types of Component and is **not** unitised any further, such that only the TQ Core Component and each Occupational Specialist Component are formally graded;

		(f) the **TQ Core Component** clearly assesses the core knowledge, understanding, skills and behaviours relevant to all occupations within the T Level; and (g) each **Occupational Specialist Component** clearly assesses the occupationally specific knowledge, understanding, skills and behaviours relevant to the occupations within the T Level. 6 **The TQ must not be biased towards any Occupational Specialist Component.** Where there is more than one Occupational Specialist Component for the TQ, the Supplier shall ensure that the TQ Core Component is not biased towards any particular Occupational Specialist Component. This is to ensure fairness for all Students, to support learning in their chosen Occupational Specialist Component. 7 **The TQ and its Components must be appropriately titled**. The Supplier shall ensure that the TQ and the Components reflect the titling conventions in the Former Supplier's TQ Specification and, if relevant, the Outline Content. The Supplier shall agree any amendments to the titling conventions of the TQ with the Authority and shall then use only this agreed title to refer to the TQ. 8 **The Specification of Content must support fair access to attainment, including for Students with special educational needs and/or disabilities.** Without prejudice to the Supplier's obligations in clause 3.1.7 (*How the Services must be supplied*) and clause 32 (*Equality, diversity, human rights and modern slavery*), the Supplier shall comply with all applicable Law and shall ensure that the Specification of Content is inclusive, including providing for Reasonable Adjustments and Special Consideration (as defined in SR 2.4 and SR 2.5 (respectively) below). The Supplier shall provide evidence that it has considered and addressed all such applicable Law relating to delivery of fair access to the TQ. 9 **Set recommended Guided Learning hours for each part of each Component.** The Supplier shall ensure that the Specification of Content details the recommended Guided Learning hours for each part of the TQ Core Component and each Occupational Specialist Component, including the recommended Guided Learning hours for both delivery and assessment of each such part of each such Component, provided that (i) such recommended hours are between a minimum of 900 hours and a maximum of 1400 hours and (ii) the maximum number of hours within the recommended range for the TQ Core Component are no more than 50%, and no

			less than 20%, of the overall time for the TQ. The Supplier shall provide a clear and detailed rationale for such recommended Guided Learning hours as part of its Assessment Strategy included with the Submission for the Final Approval Milestone to the Authority, or earlier at the Authority's request, and the Authority shall consider whether such proposed recommended Guided Learning hours may be included as part of the Specification of Content, provided always that the Authority's decision as to whether such recommended Guided Learning hours may be included as part of the Specification of Content shall be final. 10 **Combination of Occupational Specialist Components.** Where a T Level features more than one Occupational Specialist Component these should be specified as options from which a Student will typically select one Occupational Specialist Component. Where a Student is required to study two Occupational Specialist Components, the Supplier shall specify any prohibited combinations of Occupational Specialist Components, for example where there is overlap between the Occupational Specialist Component content or where there would be insufficient time to study a particular combination. The Supplier shall make it clear that Approved Providers can select the Occupational Specialist Component(s) they wish to deliver within these rules. Where rules of combination are given, the Supplier shall provide a clear and detailed rationale as part of its Assessment Strategy for Submission at Interim Milestone 1 which explains how any combinations are compatible and achievable within the duration of the TQ. 11 Where, in exceptional circumstances, the Supplier proposes to give Students the option to study more than two Occupational Specialist Components, it must provide a clear and detailed rationale as part of its Assessment Strategy for Submission at Interim Milestone 1 to the Authority and the Authority shall consider whether such rules of combination are appropriate, provided always that the Authority's decision as to whether such rules of combination are appropriate shall be final.
Service Requirement 2: Assessment design and delivery			
Outcomes The TQ provides for optimal assessment and reliable evidence	**SR 2.1** Assessment quality	1	The Supplier shall ensure that: (a) the Scheme of Assessment, the TQ Specimen Assessment Materials and the TQ Live Assessment Materials provide the optimum balance of the assessment principles set out below; and

of a Student's attainment in relation to the knowledge, understanding, skills and behaviours specified in the Former Supplier's Specification of Content and, if relevant, the Outline Content. The TQ supports fair access to attainment for all Students who take the TQ.		(b) the Assessment Strategy sets out a detailed rationale to explain how the TQ Specification, the TQ Specimen Assessment Materials and the TQ Live Assessment Materials meet these assessment principles. **Assessment principles** 1 **Validity.** The extent to which the TQ assessments (including the TQ Specimen Assessment Materials and the TQ Live Assessment Materials) effectively measure what they are intended to measure. This includes the extent to which TQ assessments (including the TQ Specimen Assessment Materials and the TQ Live Assessment Materials) allow Students to produce assessment evidence for the TQ that clearly corresponds to the Specification of Content and ensures the Specification of Content is not under-represented or misrepresented. 2 **Reliability.** This is about consistency and so concerns the extent to which the various stages in the TQ assessment process generate outcomes that would be replicated were the assessment repeated. The reliability of an assessment is affected by a range of factors, such as the sampling of assessment tasks and inconsistency in marking by human assessors. Reliability is critical to ensuring standards of attainment are equivalent over time (comparable performance). 3 **Comparable performance.** The extent to which the same grade for a Component with the same title indicates a comparable level of Student performance across Approved Providers (nationally) and over time. 4 **Minimising bias.** Ensuring that a TQ assessment (including the TQ Specimen Assessment Materials and the TQ Live Assessment Materials) does not produce unreasonably adverse outcomes for Students who share a particular characteristic. The Supplier should seek to ensure all Students are treated fairly and the assessment (including the TQ Specimen Assessment Materials and the TQ Live Assessment Materials) complies with all applicable Law. 5 **Minimising malpractice.** Ensuring the TQ design (including the TQ Specimen Assessment Materials and the TQ Live Assessment Materials) and processes relating to the delivery of the TQ assessments limit malpractice, including attempts by candidates to communicate with each

		other during an assessment and failures by Provider staff to comply with Supplier instructions regarding storage of Student assessment evidence. 6 **Appropriate demand.** This relates to the level of difficulty of a TQ assessment task (including within the TQ Specimen Assessment Materials and the TQ Live Assessment Materials) and the requirements of the relevant part of the Specification of Content which is to be assessed and any expectations of performance at specified grades. Demand should be appropriate to a level 3 qualification. 7 **Manageability.** The feasibility of carrying out the TQ assessment processes. A manageable assessment process is one that has reasonable expectations of Students, Approved Providers and (where appropriate) Employers. This will be based on the impact of the assessment process on Students, Approved Providers and (where appropriate) Employers as against the usefulness of the outcomes.
	SR 2.2 General assessment delivery requirements	The Supplier shall: 1 specify when the TQ assessments can be undertaken during the relevant Academic Year (taking into account any dates prescribed by the Key Dates Schedule for the relevant Academic Year) so that Students have sufficient time to generate assessment evidence and/or demonstrate the required knowledge, understanding, skills and behaviours; 2 notwithstanding the number of Assessors (and Moderators where permitted in accordance with the Approved Assessment Strategy) identified in the Implementation and Delivery Plan and/or the Resource Plan, ensure a sufficient number of qualified and trained Assessors (and such Moderators) are available to assess Students' assessment evidence for the TQ; 3 train Assessors (and Moderators where permitted in accordance with the Approved Assessment Strategy) so that their judgements in relation to the TQ assessments are consistent and accurate and applied in line with the standards defined by or through such training;

		4 sample the marking of live TQ assessments (to ensure accuracy and consistency) and, where such marking is not accurate and/or consistent, take all such steps as are necessary to ensure that such marking is accurate and consistent; 5 ensure the TQ Live Assessment Materials are made available to Approved Providers in English (online and/or in hard copy (as applicable)); 6 ensure the TQ Live Assessment Materials are available at the right time (online and/or in hard copy (as applicable)) in accordance with this Contract; 7 ensure that TQ Live Assessment Materials are free from errors and where any errors are identified in the TQ Live Assessment Materials they are dealt with appropriately, including through the issue of an erratum and by taking all such actions as are necessary to ensure that Students are not disadvantaged as a result of such errors; 8 where Student assessment evidence for the TQ is required to be generated under supervised conditions: (a) ensure that the nature of the supervised conditions and the hours for such supervised conditions are detailed in the TQ Specification; and (b) provide a clear and detailed rationale as part of its Assessment Strategy for Submission at Interim Milestone2 to the Authority and the Authority shall consider whether such hours are appropriate, provided always that the Authority's decision as to whether such hours are appropriate shall be final; 9 ensure that Approved Providers comply with the Approved Provider's Quality Assurance Process, including: (a) keeping Students' assessment evidence for the TQ secure during and after assessment; and (b) verifying that a Student's assessment evidence for the TQ has been solely produced by that Student;

		10 following DfE Approval, monitor the delivery of the TQ to identify any feature which could disadvantage a group of Students who share a particular characteristic and shall, as soon as reasonably practicable following identification of such a feature, take such steps as are necessary to minimise the feature being an unnecessary barrier to Student attainment; 11 monitor and investigate instances of malpractice and/or maladministration relating to the TQ in accordance with paragraph 3 (TQ Provider Approval and monitoring services) of Part 1 of this Service Requirements; 12 ensure final marks awarded by Assessors (and Moderator final marks and/or judgements, where permitted in accordance with the Approved Assessment Strategy) in relation to the TQ are collected for each Student and checked for accuracy by the relevant date specified in the Implementation and Delivery Plan; and 13 where marking is to be applied to Student assessment evidence for the TQ by Assessors (and/or by assessors employed or engaged by Approved Providers and/or Moderation is to be undertaken in relation to such marking (in circumstances where the Approved Assessment Strategy allows for use of assessors employed or engaged by the Approved Provider)), ensure: (a) such Assessors (and assessors and Moderators) are appropriately trained and competent; (b) such Assessors (and Moderators) have no personal interest in the outcome of the marking; and (c) marking and Moderation is conducted in a way which secures the accuracy of marking and a consistent approach to marking, provided always that where the Supplier determines that such marking and/or Moderation is not being undertaken accurately and consistently, it shall correct any inaccuracies and/or inconsistencies and shall take (or shall (where necessary) procure that the relevant Approved Provider and/or Moderator shall take (as the case may be)) all necessary steps to prevent any future recurrence of such inaccuracy and/or inconsistency.
	SR 2.3	1 The Supplier shall ensure that it has all necessary processes in place to ensure that, where TQ Live Assessment Materials are confidential (including the content of or information about

	Confidentiality of TQ Live Assessment Materials	such TQ Live Assessment Materials), all such TQ Live Assessment Materials remain confidential. 2 If, notwithstanding the processes referred to above, a breach of confidentiality in relation to the TQ Live Assessment Materials does occur (including through the loss, theft or transmission of confidential TQ Live Assessment Materials) or is either suspected by the Supplier or alleged by any other person (and where there are reasonable grounds for that suspicion or allegation), such matter shall be notified to the Authority in accordance with paragraph 3.2 of Part 1 of this Service Requirements and the provisions of paragraphs 3.3 to 3.5 (inclusive) of such Part 1 of this Service Requirements shall apply.
	SR2.4 Reasonable Adjustments	"**Reasonable Adjustments**" means such adjustments to and/or exemptions from the TQ Live Assessment Materials (as applicable) as are necessary and reasonable (in the context of what is being assessed) to enable a Student with special educational needs and/or disabilities to demonstrate his or her knowledge, understanding, skills and behaviours to the level of attainment required. The Supplier shall: 1 have in place clear arrangements for making Reasonable Adjustments; 2 explain (in the Assessment Strategy) how Reasonable Adjustments will be made to support fair access to attainment; and 3 provide details of such arrangements to Approved Providers, in each case, taking into account and (where applicable) implementing the process, approach and/or system agreed between the T Level Awarding Organisations pursuant to paragraph 2.1.8 of Schedule 4 (Co-operation).
	SR2.5 Special Consideration	"**Special Consideration**" means consideration to be given to a Student who has experienced a temporary illness, injury or other event outside of the Student's control and which has had, or is reasonably likely to have had, a material effect on that Student's ability to take a TQ assessment or demonstrate his or her level of attainment in a TQ assessment. The Supplier shall:

		1 have in place clear arrangements for Special Consideration; 2 explain (in the Assessment Strategy) how Special Considerations will be applied to support fair access to attainment; and 3 provide details to Approved Providers of how to request such Special Consideration, in each case, taking into account and (where applicable) implementing the process, approach and/or system agreed between the T Level Awarding Organisations pursuant to paragraph 2.1.8 of Schedule 4 (*Co-operation*).
	SR 2.6 TQ Core Component assessment design and delivery	1 **The TQ assessments must be appropriately weighted.** Where there is more than one Occupational Specialist Component for the TQ, the Supplier shall not weight the assessment of the TQ Core Component more heavily towards any one Occupational Specialist Component. This is to ensure fairness for all Students, to support learning in their chosen Occupational Specialist Component. 2 The Supplier shall assess the TQ Core Component using two distinct methods, as follows: (a) the core knowledge and understanding shall be assessed using an External Examination; and (b) the core skills and relevant aspects of core knowledge shall be assessed through the Employer Set Project in accordance with paragraph 3 below, in each case, as referred to in the Specification of Content. 3 Evidence generated by a Student in assessments of the Employer Set Project should be marked by an Assessor. However, in very exceptional circumstances set out in the Approved Assessment Strategy, an Approved Provider may be permitted to mark assessment evidence generated by a Student only where the Supplier: (i) puts in place robust arrangements which ensure that such marking achieves valid and reliable outcomes; (ii) uses an approach that is as close to complete independence as possible (such arrangements and approach to be

		detailed in the Approved Assessment Strategy); and (iii) procures that all such marking is subject to Moderation.[2] 4 **Assessment objectives.** The Supplier shall: (a) set out the assessment objectives for each of the External Examination and the Employer Set Project; and (b) specify the relevant weightings as between the External Examination and the Employer Set Project, in each case, in the Scheme of Assessment. 5 **Minimum performance requirements for the TQ Core Component must be clearly defined.** The Supplier shall ensure that: (a) the External Examination and the Employer Set Project are each assessed using compensatory assessment methods, such that high performance in one part of the TQ Core Component assessment compensates for lower performance in another; and (b) the minimum performance requirements for each judgemental grade required for the TQ Core Component shall reference each of the External Examination and the Employer Set Project. 6 **Devise the External Examination to assess the full range of knowledge and understanding outlined in the TQ Core Component.** The Supplier shall ensure that: (a) the External Examination will sample from the full breadth of relevant parts of the Specification of Content; and (b) an indicative sampling grid for the Term is included within the Assessment Strategy.

[2] These proposed arrangements should form part of the Supplier's Response.

		7 **Assessment of core skills and relevant aspects of knowledge through Employer Set Project.** The Supplier shall develop briefs for Employer Set Projects and shall ensure that: (a) such briefs are developed in collaboration with Employers; (b) each such brief enables a Student to demonstrate core skills and relevant aspects of core knowledge in an occupationally relevant context; and (c) the Assessment Strategy outlines how such briefs will continue to be relevant to the TQ Core Component throughout the Term and how the Supplier will ensure that such Employer Set Projects do not become predictable and how they will keep pace with the needs of industry, in each case, so that new briefs for Employer Set Projects are made available by the Supplier in each Academic Year. 8 **Engage with relevant Employers to set clear project briefs**. The Supplier shall: (a) engage with Employers to ensure that sufficient project brief(s) is/are made available to enable Students to demonstrate skills across the breadth of the available Occupational Specialist Component(s), provided always that where the Supplier proposes to make available only one project brief in respect of the TQ to Students and/or proposes to utilise a project brief in respect of more than one Occupational Specialist Component, then: (i) the Supplier shall provide a detailed rationale for such proposals as part of its Assessment Strategy included with the Submission for Interim Milestone 1 to the Authority; (ii) the Authority shall consider whether such proposals are acceptable; and (iii) the Authority's decision as to whether such proposals are acceptable shall be final; (b) engage with Employers to ensure that each project brief:

		(i) has clear objectives, which align with the Specification of Content and which aim to motivate Students; (ii) requires Students to solve a real world problem; (iii) enables Students to generate sufficient assessment evidence to meet the objectives referred to in (i) immediately above; (iv) clearly sets out the arrangements and restrictions for Approved Providers to support Students in carrying out and completing the Employer Set Project; and (v) allows sufficient time to enable Students to generate sufficient assessment evidence; and (c) obtain evidence of validation from each Employer involved in setting the brief(s) that they approve such brief(s) (and the Supplier shall make available to the Authority a copy of such evidence). Evidence of employer validation must include, but is not limited to, details of the questions asked of Employers, Employer responses and how the AO addressed Employer feedback.
	SR 2.7 Occupational Specialist Component assessment design and delivery	1 **Assessment of performance outcomes**. The Supplier shall ensure that: (a) the assessment materials for each Occupational Specialist Component assess all performance outcomes detailed in the Specification of Content for that Occupational Specialist Component; and (b) so far as is reasonably practicable, each assessment is synoptic to reflect how knowledge, understanding, skills and behaviours are drawn together and implemented to develop meaningful occupationally relevant Student assessment evidence, which attests to Occupational Entry Competence, provided always that where the Supplier reasonably determines that it is not possible to assess performance outcomes synoptically, the Supplier shall provide a clear and detailed rationale as part of its Assessment Strategy for Submission at Interim Milestone 1 to the Authority and the Authority shall consider whether it is acceptable not to assess performance outcomes

		synoptically, provided always that the Authority's decision as to whether such approach is appropriate shall be final. 2 Evidence generated by a Student in assessments of each Occupational Specialist Component should be marked by an Assessor. However, in very exceptional circumstances set out in the Approved Assessment Strategy, an Approved Provider may be permitted to mark assessment evidence generated by a Student only where the Supplier: (i) puts in place robust arrangements which ensure that such marking achieves valid and reliable outcomes; (ii) uses an approach that is as close to complete independence as possible (such arrangements and approach to be detailed in the Approved Assessment Strategy); and (iii) procures that all such marking is subject to Moderation.[3] 3 **Exemplifying the expected standards of attainment**. The Supplier shall, for each Occupational Specialist Component, produce Guide Standard Exemplification Materials (which shall be validated by sufficient and representative sample of Employers and Providers as agreed by the Authority)) for the purposes of DfE Approval and for each assessment series in which the relevant Occupational Specialist Component is assessed, produce Grade Standard Exemplification Materials which shall be submitted to the Authority for agreement by no later than the end of September following the relevant assessment series and published by the end of October following such submission to the Authority, unless otherwise agreed in writing by the Authority.
Service Requirement 3: Grading and Awarding		
Outcomes Grades awarded for the TQ Core Component and each Occupational Specialist Component	**SR 3.1**	1 The Supplier shall undertake grading and awarding in accordance with the relevant part of the Approved Assessment Strategy.

[3] These proposed arrangements should form part of the Supplier's Response.

are reliable and allow Employers and other end-users (including higher education providers) to accurately identify a Student's level of attainment and effectively differentiate their performance. The TQ supports fair access to attainment for all Students who take the TQ. The minimum pass grade standard for each Occupational Specialist Component attests to Occupational Entry Competence, meets Employer expectations, and is as close to full occupational competence as possible.		
Service Requirement 4: Provider Approval		
Outcomes Approved Providers are capable of	**SR4.1**	1 The Supplier shall receive and process applications from Eligible Providers to become Approved Providers in accordance with the relevant part of the Approved Assessment Strategy.

delivering the TQ to meet the required standards and expectations.		2 The Supplier shall (within 30 Working Days) following receipt of an application for Provider Approval from an Eligible Provider: (a) assess that Eligible Provider against the Provider Approval Criteria to determine whether such Eligible Provider satisfies all of the requirements of the Provider Approval Criteria; (b) notify that Eligible Provider of the outcome of its application; and (c) where the Eligible Provider satisfies all of the requirements of the Provider Approval Criteria, grant Provider Approval in respect of such Eligible Provider.
Service Requirement 5: Provider Support		
Outcomes Approved Providers are fully supported to plan and deliver (including to properly prepare Students for assessment) the TQ to meet the required standards and expectations.	**SR 5.1**	The Supplier shall ensure that Approved Providers are fully supported to promote, plan and deliver the TQ, including: 1 setting out in the TQ Specification and Assessment Guidance for Providers any guidance and support available to the Approved Provider in respect of the TQ, which may include guidance as to sequencing of assessment of any Component; 2 providing a telephone, email and internet facility and ensuring that sufficient, suitably trained contact staff are available to: (a) answer Approved Providers' queries regarding the Provider Services and/or the TQ (including enquiries and/or queries about results); (b) deal with complaints in relation to the Provider Services and/or the TQ; and (c) ensure that such queries and/or complaints (and any queries about the T Level Programme, including different programme elements and work placements) are directed to the relevant individual at the Supplier, the Authority or other Stakeholder (as applicable);

		3 ensuring that such training, resources and other information relating to the TQ, as is necessary to assist Approved Providers' administration and examination officers, is available, including in relation to: (a) key dates for administration of the TQ; (b) how to use any systems to upload materials; and (c) which forms should be used to enable Approved Providers to claim completion of the TQ by the relevant Student; 4 ensuring that such training, resources and other information relating to the TQ, as is necessary to assist Approved Providers' teaching and learning, is available to ensure the requirements of the TQ are clear and Students can be well prepared for assessment for the TQ, including: (a) exemplifying (through the provision of and training in relation to the application of the Guide Standard Exemplification Materials) the expected standards of performance for the TQ for the First Teach Cohort, so that the Approved Providers are able to design effective courses and have a clear understanding of the quality and standards their Students need to achieve; and (b) the development in accordance with Annex 11 to the Service Requirements, of (i) Supplementary Specimen Assessment Materials; (ii) Employer Set Project Guide Exemplar Responses; (iii) Employer Set Project Grade Exemplar Responses; and (iv) Accompanying Assessment Guidance for Providers; all of which must be suitable to be used by Approved Providers to prepare Students effectively for live TQ assessments; and (c) exemplifying (through the provision of documentation, including chief examiner and chief moderator reports, which provides an overview or analysis of Student performance and includes but is not limited to, examples of student responses to assessment questions and/or tasks) the expected standards of performance for the TQ,

		so that Approved Providers are supported in understanding how students performed at item, sub-component and component level to support future teaching and learning. 5 undertaking intermittent reviews to ensure that the support remains fit for purpose, taking account of feedback from Approved Providers and amending the support packages as necessary; 6 having in place systems and processes to monitor and report to the Authority details of Approved Provider uptake of the TQ Deliverables (and any other Products and/or documents associated with the TQ), ensuring each and every Approved Provider has accessed and is using the current version of the relevant TQ Deliverable. 7 aligning training and resources with any wider FE Professional Readiness to Deliver T Levels training and support, and/or other Provider support offered by the Authority; and 8 supporting Approved Providers on agreed promotional activity, as appropriate following any reasonable request from the Authority.
Service Requirement 6: Student registration and Student entry		
Outcomes Unique identification of Students	**SR 6.1**	The Supplier shall procure that Approved Providers register each Student undertaking the TQ in a way that permits the Student to be clearly and uniquely identified.
Service Requirement 7: TQ Results		
Outcomes Accurate and complete results	**SR 7.1**	The Supplier shall ensure that all results which it issues are accurate and complete and reflect the outcome of the awarding process.

Service Requirement 8: TQ Post-Results Services		
Outcomes The TQ provides for optimal assessment and reliable evidence of a Student's attainment in relation to the knowledge, understanding, skills and behaviours specified in the Former Supplier's TQ Specification and, if relevant the Outline Content. The TQ supports fair access to attainment for all Students who take the TQ.	**SR 8.1** Assessment Review	The Supplier shall ensure a transparent and effective process for review of marks (or (where applicable) Review of Moderation (as defined in Annex 10 (*Additional Services*) to this Service Requirements) for each Component.[4]
	SR 8.2 Appeals Process	1 The Supplier shall operate an appeals process, which enables Approved Providers to appeal: (a) the results of TQ assessments undertaken by Students or (in the case of an appeal in respect of an individual Student) results of TQ assessments undertaken by that Student (including in either case the outcome of a Review of Marking and/or Review of Moderation); (b) any decisions regarding Reasonable Adjustments and/or Special Consideration for Students or (in the case of an appeal in respect of an individual Student) decisions regarding Reasonable Adjustments and/or Special Consideration for that Student; and

[4] The proposed process should form part of the Supplier Response. This requirement will simply link to the proper implementation of that process.

		(c) decisions which have resulted in action taken against that Approved Provider or (in the case of an appeal in respect of an individual Student) that Student in relation to the TQ, in either case, following an investigation into malpractice or maladministration,[5] (together or individually (as the case may be) an "Appeal"). 2 Where, as a result of an Appeal, the Supplier identifies that there is or was (as the case may be) a failure in its TQ assessment process affecting more than one Student, it shall: (a) notify the Authority of such failure (including full details of the impact of such failure); (b) identify all Students who have (or who may reasonably be expected to have) been affected by the failure; (c) correct or, where it cannot be corrected, mitigate as far as possible the effect of the failure; and (d) take all such steps as are necessary to ensure that such failure does not recur in the future, and the provisions of paragraphs 3.2 to 3.5 (inclusive) of Part 1 of this Service Requirements shall apply in respect of such failure.
Service Requirement 9: Reporting		
Outcomes Accurate and timely information and data is available throughout the Term	**SR 9.1**	The Supplier shall ensure that the Management Information is provided to the Authority as follows. In the case of: 1 the Development Phase Report, in accordance with clause 5.5 (*Developing the TQ and achieving DfE Approval*);

[5] The proposed appeals process should form part of the Supplier Responses. This requirement will simply link to the proper implementation of that process.

		2	the Operational Delivery Report, in accordance with paragraph 3.1 of Schedule 15 (*Monitoring of Performance*);
		3	the information and data generated pursuant to paragraph 5 of Part 1 of this Service Requirements, in accordance with paragraph 5.4 of Part 1 of this Service Requirements;
		4	the information and data generated pursuant to paragraph 8 of Part 1 of this Service Requirements, in accordance with paragraph 8.2 of Part 1 of this Service Requirements;
		5	the information and data relating to the delivery of the Additional Services in accordance with paragraphs 5.3, 6.1.3 and 9.1.2 of Part 1 of this Service Requirements, in each Contract Month; and
		6	the information and data relating to adjustment to the Fees pursuant to clauses 4.12 and 4.13 (*Pricing and payments*), in accordance with clause 4.13.1 (*Pricing and payments*).
		7	the information and data relating to the delivery of the Social Value commitments in accordance with paragraph 13.1 *(Social Value Commitments)*

Part 3 – Product Descriptions

This Part 3 sets out the Product Description for each Product.

Product	Description
Assessment Strategy	A clear and detailed explanation for how the TQ meets the outcomes/overall measures and requirements for each Service. In relation to the **design** of the TQ, the Assessment Strategy shall include details of and a clear and detailed rationale for: • how the design of the TQ will ensure compliance (including ongoing compliance) with all relevant requirements of this Service Requirements; • (i) individual assessment time for each TQ assessment, for example in terms of covering the required part of the Specification of Content effectively and balancing reliability and manageability, and (ii) combined assessment time for the different TQ assessments; • the number of marks for each individual TQ assessment, for example in terms of covering the required part of the Specification of Content effectively and balancing reliability and manageability; • how the design of the TQ will ensure appropriate compensation taking into account the requirements of SR 2.6 (5) (a) of Service Requirement 2; • the approach to differentiating for the available grade range in each case; • how Students' interests will be protected if there are changes to the Specification of Content; • the Guided Learning hours for each Component, taking into account the requirements of SR 1.1 (9) of Service Requirement 1;

Product	Description
	• if applicable, why Students have been given the option to study more than two Occupational Specialist Components; • the approach to how assessments will be structured, for example in terms of covering the required part of the Specification of Content effectively and achieving the optimum balance of the assessment principles set out in SR 2.1 of Service Requirement 2, including: o the number of tasks and assessments in the External Examination; o the number of tasks and assessments in the Employer Set Project; o the relative weightings of the External Examination and the Employer Set Project; o the number of tasks and assessments for each Occupational Specialist Component; o for Occupational Specialist Components, why it is not possible to assess performance outcomes synoptically (if applicable); and o how the Former Supplier's TQ Specification and, if relevant, the Outline Content will be covered over the life of the Contract including any proposed approach to sampling. • in very exceptional circumstances where the Supplier considers that there is justification for any assessments in relation to the Employer Set Project and/or the Occupational Specialist Components to be marked by an Approved Provider and not externally marked by an Assessor, a detailed rationale which explains why this is necessary in terms of achieving an optimum balance of the assessment principles set out in SR 2.1 of Service Requirement 2 and a detailed explanation of the approach to Moderation. Exceptional circumstances shall include the following factors: o where the assessment evidence generated by Students is likely to arise spontaneously and/or be ephemeral in nature and where this may lead to significant or insurmountable logistical difficulties in terms of the Supplier arranging to be present for every assessment; o where the assessment would require repeat measurement over an extended period of time, potentially including measurement of multiple aspects across multiple Students, rather than measurement on a single occasion and where this may lead to significant or insurmountable logistical difficulties in terms of the Supplier being present for the whole period of the assessment; o where the presence of an Assessor could significantly affect the assessment, for example because it may place undue pressure on Students and therefore undermine fairness, or could require the assessment to be designed and/or completed in an artificial way which would undermine validity; and

Product	Description
	○ where the presence of an Assessor is not possible owing to issues of sensitivity and/or confidentiality with respect to individuals required to participate in the assessment(s), provided always that the factor(s) giving rise to a claim by the Supplier of the existence of any exceptional circumstances are relevant to the content of the TQ, the risks to the validity or manageability of the assessment arising as a result of such factor(s) are significant and such factor(s) and/or risk(s) cannot be managed or mitigated without marking being undertaken by an Approved Provider; • the approach to coverage of the Former Supplier's TQ Specification and, if relevant the Outline Content, including: ○ how the Former Supplier's TQ Specification and, if relevant the Outline Content has been covered overall and in each TQ assessment; ○ how the Former Supplier's TQ Specification and, if relevant the Outline Content has been elaborated on where necessary; ○ if applicable, why it is necessary to move elements of the Former Supplier's TQ Specification and, if relevant, the Outline Content which relate to one Component into another Component; and ○ if applicable, why it is necessary to include entirely new content that is not included in the Former Supplier's TQ Specification and, if relevant, the Outline Content into the Specification of Content; • the approach to: ○ mapping of the Specification of Content in TQ Specimen Assessment Materials; ○ coverage of the Specification of Content over time; and ○ ensuring the assessments for the TQ Core Component and each Occupational Specialist Component support fair access to attainment, including the approach to Reasonable Adjustments and Special Consideration; • the assessment objectives and weightings for the External Examination and the Employer Set Project; • the approach to targeting assessment objectives in the External Examination and the Employer Set Project, and to targeting performance outcomes in each Occupational Specialist Component; • the approach to each TQ assessment, including: ○ an explanation of:

Product	Description
	▪ the range of task types to be used (e.g. multiple-choice, short answer, extended response, practical assignment) and how these will support valid assessment of the Specification of Content; and ▪ the approach to mark scheme and assessment criteria design, including for different task types, and an explanation of how resulting mark schemes and assessment criteria will support reliable application by Assessors (and any assessors employed or engaged by any Approved Provider and any Moderators where permitted in accordance with the Approved Assessment Strategy); o sample question/tasks which may be from the TQ Specimen Assessment Materials, and associated mark schemes and assessment criteria, representing the range to be used in each such TQ assessment, with commentaries explaining the approaches; o an indicative sampling grid for the External Examination; and o how the requirements of SR 2.6 (7) and SR 2.6(8) of Service Requirement 2 have been taken into account. • the approach to availability of TQ assessments, including: o when assessments will be scheduled for the External Examination, the Employer Set Project and each Occupational Specialist Component; o how the approach is appropriate, including consideration of: the amount and weight of material to be covered; the extent to which different aspects would be covered sequentially or concurrently; how coherence with the overall T Level Programme will be promoted; the need to ensure that enough time is available for sufficient learning to have taken place (including how Approved Providers will be supported so that they enter Students for a Component's assessments in an appropriate Academic Year and in an appropriate assessment series within that Academic Year, in each case, within the two-year programme for the T Level); and how the approach will support standard setting; o when the first assessment cycle will be held for the First Teach Cohort, taking into account the need to ensure that standards are set appropriately in the first Academic Year so they are appropriate to be carried forward to future assessment cycles; o arrangements for Students to retake, in full, any or all of the External Examination, the Employer Set Project and each Occupational Specialist Component; and o the type of assessment (e.g. online and/or paper-based) for the External Examination, Employer Set Project and each Occupational Specialist Component; and

Product	Description
	• quality assuring the design and development of the TQ and its component assessments in line with the requirements set out in the Service Requirements and in line with the Assessment Strategy. Taking into account the approach to availability of TQ assessments, the Assessment Strategy shall include a clear and detailed explanation of any risks that have been identified, how these will be mitigated, and how particular challenges will be addressed, including: • ensuring comparability of assessments; • minimising predictability of assessments; • ensuring security and confidentiality of assessments; and • in relation to the Employer Set Project, how the Employer Set Projects will continue to be relevant to the TQ Core Component throughout the Term and how they will not become predictable and will keep pace with the needs of industry. In relation to the **delivery** of the TQ, the Assessment Strategy shall include: • details of and a clear and detailed rationale for how the delivery of the TQ will ensure ongoing compliance with all relevant requirements of this Service Requirements; • clear details of the process for developing TQ assessment materials (including TQ Specimen Assessment Materials and TQ Live Assessment Materials), including different stages and Supplier Staff involved, how evidence regarding functioning of previous assessments is used, any differences by assessment type and item setting arrangements; • clear details of the approach to training individuals who will be responsible for setting TQ assessments and/or items, including ensuring security and mitigating any conflicts of interest; • details of the nature of and number of hours of supervised conditions that will be required to deliver the TQ; • clear details of the approach to training and standardising the approach of Assessors (and any assessors employed or engaged by any Approved Provider and any Moderators where permitted in accordance with

Product	Description
	the Approved Assessment Strategy), together with details of standardisation procedures and any wider training; • a clear and detailed explanation of how the marking processes for Student assessment evidence for the TQ will operate, including any variation between the External Examination, the Employer Set Project and each Occupational Specialist Component; • a clear and detailed explanation of the process that will be in place: o to monitor accuracy and consistency of marking by Assessors (and Moderation by Moderators where permitted in accordance with the Approved Assessment Strategy) and issuing of results, and o to take remedial action where such process does not deliver accuracy and consistency of marking (and/or Moderation by Moderators where permitted in accordance with the Approved Assessment Strategy) and/or issuing of results; • a clear and detailed explanation of how malpractice will be minimised and addressed and the approach to maintaining security and confidentiality of TQ assessments, including any differences by assessment; • a clear and detailed explanation as to how live issues during assessments for the TQ will be dealt with (i.e. where the design/delivery mitigations have failed); • a clear and detailed explanation as to how results data for each Component and the TQ will be provided to the Authority in line with the Key Dates Schedule for the relevant Academic Year; and • a clear and detailed explanation as to how each Post-Results Service (referred to in paragraph 9 (*TQ Post-Results Services*) of Part 1 of this Service Requirements) will be delivered.[6] In relation to **Eligible Providers and Approved Providers**, the Assessment Strategy shall include a summary of the proposed approach to ensuring that Approved Providers are able to prepare for and undertake the TQ assessments, together with a clear and detailed explanation of:

[6] The Supplier Response should detail the Supplier's proposals for the Additional Services. This requirement will link to the proper implementation of that part of the Supplier Response.

Product	Description
	• the approach to approving Eligible Providers as Approved Providers, in line with the Provider Approval Criteria; • the approach to ensuring that all Approved Providers have appropriate and consistent quality assurance measures in place for the delivery of the TQ and ensuring that such Approved Providers maintain ongoing compliance with those quality assurance measures; • the approach to the provision of guidance and training to Approved Providers in connection with the delivery of the TQ assessments for the Employer Set Project and the Occupational Specialist Components; • the approach to monitoring Approved Providers in relation to TQ assessments for the Employer Set Project and the Occupational Specialist Components, including how this approach will ensure that such assessments remain fit for purpose on delivery; • how Guide Standard Exemplification Materials will be produced, with input from and validated by a sufficient and representative sample of Employers and Providers as agreed by the Authority; and • how Grade Standard Exemplification Materials will be produced, and kept under review. In relation to **awarding**, the Assessment Strategy shall include a clear and detailed explanation of: • the technical methodology employed in the awarding process, including the Supplier Staff involved and their roles; • how the decisions from the awarding process are approved within the Supplier and the Supplier Staff involved in this; • how comparability between different versions of assessments and different types of assessment (e.g. online vs paper-based) is ensured, both where these are available at the same time and on an ongoing basis; • how comparability between any options in the TQ will be ensured;

Product	Description
	• how any evidence in relation to the comparability of the TQ with the technical education qualification element for other applicable T Levels within the same Route (including those offered by other T Level Awarding Organisations) will be used to inform decisions on standard setting; • how grades are calculated, including judgemental and arithmetic grade boundaries, aggregation of marks between the External Examination and Employer Set Project, and the use of any conversion scales; and • the approach to and range of qualitative and quantitative evidence used to inform grading and awarding decisions and the weight given to different sources, together with: o a rationale for this approach in the light of the TQ design and Cohort make-up; and o details of how this approach will be kept under review and may be adjusted, including any variation between initial standard setting and maintenance of standards, and in relation to such qualitative and quantitative evidence: o qualitative evidence shall include (for the TQ Core Component and each Occupational Specialist Component as a whole and for each TQ assessment): ▪ views of senior examiners about the quality of Student assessment evidence for the TQ; ▪ views of senior examiners about the demand of TQ assessments; ▪ performance descriptions informed by Employer views; ▪ Guide Standard Exemplification Materials and Grade Standard Exemplification Materials informed by Employer views; ▪ archive Student assessment evidence for the TQ from previous series (where applicable); and ▪ if necessary, cognate Student assessment evidence for the TQ, for example from related qualifications; and o quantitative evidence shall include (for the TQ Core Component and each Occupational Specialist Component as a whole and for each TQ assessment): ▪ mark distribution; ▪ mean mark; ▪ standard deviation; ▪ item-level data, such as facility and discrimination indices;

Product	Description
	▪ percentage of Students achieving each grade in previous series; and ▪ information about Students' prior/concurrent attainment. The Assessment Strategy shall also include an explanation as to how innovation will be appropriately tested before implementation to secure on-going compliance by the Supplier with its obligations under this Service Requirements.
Employer and Provider Engagement Strategy	A clear and detailed strategy describing the approach to, and timelines for, engaging with, and where applicable training, Employers and Providers in relation to the design, content, delivery, assessment, validation and update of the TQ and the Services. This should include the approach to sharing early and/or amended drafts of all Initial TQ Deliverables and TQ Deliverables with Employers and Providers (as applicable). The strategy should also include details on the proposed process and timelines in relation to the onboarding of the Former Supplier's Approved Providers.
TQ Specification	**Specification of Content** The Specification of Content shall set out the knowledge, understanding, skills and behaviours that Students need to learn for the TQ Core Component and each Occupational Specialist Component. The Specification of Content for the TQ Core Component and each Occupational Specialist Component must be clear and unambiguous and adequately cover (and where necessary build on) the Former Supplier's TQ Specification and, if relevant, the Outline Content (and not simply replicate it). The Specification of Content shall detail the recommended Guided Learning hours for each Component (including recommended Guided Learning hours for both delivery and assessment of each Component), taking into account the requirements of SR 1.1 (9) of Service Requirement 1. The TQ Specification will be validated by a sufficient and representative number of Employers as agreed by the Authority. **Scheme of Assessment** *TQ Core Component – External Examination – knowledge and understanding* The Scheme of Assessment shall clearly set out (in relation to the External Examination) an explanation for Approved Providers of:

Product	Description
	• the assessment objectives and their weightings; • the method and number of assessments (if more than one); • the duration of the/each assessment; • the number of marks in the/each assessment; • how and when the/each assessment will be made available; • the grades available for the TQ Core Component and that these grades are for the External Examination and the Employer Set Project in combination; and • any relevant design features for the External Examination, such as the range of different question types that will be used and any access there will be to stimulus/pre-release materials. *TQ Core Component – Employer Set Project* The Scheme of Assessment shall clearly set out (in relation to the Employer Set Project) an explanation for Approved Providers of: • the assessment objectives and their weightings; • the assessment tasks available, i.e. options; • the duration of the assessment; • the number of marks for the assessment; • how and when the assessment will be made available; • the assessment criteria that will be applied (including, in very exceptional circumstances set out in the Approved Assessment Strategy, where any assessments in relation to the Employer Set Project are to be marked by an Approved Provider and not externally marked by an Assessor, details of how marks should be allocated); • the conditions under which assessment evidence must be generated; • the forms of assessment evidence that must be retained by the Approved Provider and the expectations around this; • the grades available for the TQ Core Component and that these grades are for the External Examination and Employer Set Project in combination; and

Product	Description
	• (in very exceptional circumstances set out in the Approved Assessment Strategy, where any assessments in relation to the Employer Set Project are to be marked by an Approved Provider and not externally marked by an Assessor) details of how Moderation will be conducted. The Scheme of Assessment shall also: • specify the relevant weightings as between the External Examination and the Employer Set Project; and • outline the minimum performance requirements for each judgemental grade required for the TQ Core Component (and each judgemental grade shall reference both the External Examination and Employer Set Project). *Occupational Specialist Components* The Scheme of Assessment shall clearly set out (in relation to each Occupational Specialist Component) an explanation for Approved Providers of: • the performance outcomes and how these are mapped to the Former Supplier's Specification of Content and, if relevant, the Outline Content; • the assessment task(s) for the relevant Occupational Specialist Component; • the duration of the assessment; • the number of marks for the assessment; • how and when the TQ Live Assessment Materials will be made available; • the assessment criteria that will be applied (including, in very exceptional circumstances set out in the Approved Assessment Strategy, where any assessments in relation to the relevant Occupational Specialist Component are to be marked by an Approved Provider and not externally marked by an Assessor, details of how marks should be allocated); • the conditions under which Student assessment evidence must be generated; • the forms of Student assessment evidence that must be retained by the Approved Provider and the expectations around this; • any permissions/prohibitions with respect to different Occupational Specialist Components being taken in combination; • the grades available for the relevant Occupational Specialist Component; and

Product	Description
	• (in very exceptional circumstances set out in the Approved Assessment Strategy, where any assessments in relation to the relevant Occupational Specialist Component are to be marked by an Approved Provider and not externally marked by an Assessor) details of how Moderation will be conducted. **Approved Provider's Quality Assurance Process** This part of the TQ Specification shall set out details of the Approved Provider's role in quality assuring the TQ assessments, to ensure compliance by the Supplier with its quality assurance obligations in the relevant part of the Supplier Response[7], for example: • authentication – ensuring Students' assessment evidence is their own; • malpractice – for example during controlled conditions; and • any other activity required of Approved Providers by the Supplier to ensure regulatory/contractual requirements are met. **Additional Information for Approved Providers** The TQ Specification shall also clearly set out: • the Qualification Purpose; and • the prior learning requirements for the TQ (if applicable). The TQ Specification shall also clearly set out, or provide appropriate links to, information regarding: • calculating grades (e.g. aggregation and scaling); • submitting general queries; • access arrangements, Reasonable Adjustments and Special Consideration; • enquiries about results and Appeals; • retakes; and

[7] The proposed assurance arrangements should form part of the Supplier Response.

Product	Description
	• any guidance in relation to delivery of the TQ.
TQ Specimen Assessment Materials	The TQ Specimen Assessment Materials shall comprise examples of assessments that are representative of the approach the Assessment Strategy proposes is used in live operation and shall be produced to the same quality standard. The TQ Specimen Assessment Materials shall cover each of the following: • TQ Core Component – External Examination – sample question paper and mark scheme for the/each assessment, together with mapping to the Former Supplier's Specification of Content and, if relevant, the Outline Content and sampling approach proposed; • TQ Core Component – Employer Set Project – assessment tasks/requirements for each available option and assessment criteria; and • Occupational Specialist Component – practical assessment tasks/requirements and assessment criteria for each Occupational Specialist Component. TQ Specimen Assessment Materials for all components of the TQ will be validated by a sufficient and representative number of Employers as agreed by the Authority.
TQ Live Assessment Materials	The live assessment materials (modelled on the TQ Specimen Assessment Materials and taking into account (as applicable) performance demonstrated by previous TQ Live Assessment Materials) that are to form the basis of assessment for the TQ for the relevant Academic Year.
Exemplification Materials	**Guide Standard Exemplification Materials** Guide Standard Exemplification Materials shall include indicative 'guide' examples of Student assessment evidence which the Supplier judges would be likely to meet the minimum requirements for Occupational Entry Competence and higher grades in each Occupational Specialist Component. Guide Standard Exemplification Materials will be produced in consultation with and validated by Employers. Guide Standard Exemplification Materials must accurately portray student assessment evidence and may include, but is not limited to, the use of photographic, audio or video evidence accompanied by an explanatory commentary. **Grade Standard Exemplification Materials**

Product	Description
	Grade Standard Exemplification Materials shall include actual marked examples of Students' assessment evidence, selected after awarding, which: • have met the minimum requirements for Occupational Entry Competence and higher grades in each Occupational Specialist Component; • are produced (and reviewed on an ongoing basis); • may be used to train Assessors (and any assessors employed or engaged by an Approved Provider and any Moderators where permitted in accordance with the Approved Assessment Strategy) to ensure that Student assessment evidence is assessed to the correct standard consistently, provided always that if the materials are used to train such Assessors (and any assessors and Moderators), the Supplier shall ensure that the spread of marks covered by the materials (including the Grade Standard Exemplification Materials) that are used for such training shall not be restricted to the grade boundaries but shall include material at a range of other marks; and • meet the requirements of SR 2.7(3) of Service Requirement 2. Student assessment evidence may include, but is not limited to, the use of photographic, audio or video evidence accompanied by an explanatory commentary.
Implementation and Delivery Plan	A detailed explanation of the Supplier's proposed approach to successfully designing, developing and delivering the TQ throughout the Term (the level of detail in respect of the whole (and each relevant part of such Term) being commensurate with the level of detail that can reasonably be expected to be known by and/or available to the Supplier from time to time in respect of such whole or part of the Term), including evidence of the achievability of the proposed approach against the TQ Critical Path Diagram. It shall present a clear and achievable overall timetable for the delivery of all of the Services. The Implementation and Delivery Plan shall include information about the Supplier's: • programme and project management approach and project expertise to develop the design, content, assessment and delivery of the TQ, including details of delivery risks and plan to mitigate such risks; • financial modelling on cost of design, development and delivery of the TQ and delivery of the Services;

Product	Description
	• approach to working with Stakeholders (including, if relevant, the T Level Panel up to Interim Milestone 1) in relation to the design, development delivery and ongoing update of the TQ and the Services (including consultation with Eligible Providers to ensure the quality of the Initial TQ Deliverables at each Milestone); • approach to working with Stakeholders and organisations associated with and/or providing advice and/or guidance in relation to Students with special educational needs and disabilities in the design, development, delivery and update of the TQ and the Services, including a process for regularly reporting on progress; • approach to sharing early and/or amended drafts of the Initial TQ Deliverables and TQ Deliverables with Eligible Providers and/or Approved Providers (as applicable), including how such documents will be shared and when; • capacity to scale up in relation to demand and in response to delivery challenges to ensure overall delivery remains on track; • ability to develop and implement innovative solutions; • approach to ensuring that Management Information is interoperable with the Authority's systems and processes during the design, development and live operation of the TQ; • proposals for efficiently supporting Providers to deliver the TQ and to answer related enquiries and address related complaints (including Post-Result Services) made by telephone, by post and by other electronic correspondence efficiently and effectively; • process for raising delays or concerns; and • details of proposed joint working between T Level Awarding Organisations (as contemplated by Schedule 4 (*Co-operation*)) to support (amongst other things) the effective and efficient delivery of the T Level Programme and to streamline administration relating to the T Levels Programme in the interests of Students and Providers. The Implementation and Delivery Plan shall evidence that the Supplier has, or will have: • IT infrastructure and systems to support the design, development, delivery and award of the TQ; • secured any relevant third party contracts to support delivery of the TQ; and • processes for the design, development, delivery and award of the TQ.
Resource Plan	A detailed explanation of the Supplier's proposed approach to resourcing to ensure performance of the Services, and the successful design, development and delivery of the TQ, which shall be in the format of the template

Product	Description
	Resource Plan issued by the Authority as part of the procurement process leading to the award of this Contract (unless otherwise agreed with the Authority in writing). The Resource Plan shall include detail about: • all types of resources required for delivery of the Services, including a distinction between those that will be dedicated to the TQ and those that will be used for other qualifications or business areas; • the resources that will be internal and those that will be external; • the skills and experience profiles for the required resources; • any existing skills or knowledge gaps that may exist with resources already in place and how and when additional resources will be recruited, mobilised, trained and managed; • the number of resources required (including the number of Assessors (and any Moderators where permitted in accordance with the Approved Assessment Strategy) required); • what the resources would be required to deliver and by when; • how long the relevant resources would be engaged; • processes, measures and strategies that will ensure proper, effective and resilient resourcing so that the TQ will at all times operate in accordance with the Service Requirements; • processes for keeping resource requirements under review; • the proposed approach to the recruitment (including the timescales for and number) of Assessors (and any Moderators where permitted in accordance with the Approved Assessment Strategy) which have recent relevant industry experience, including the trajectory that will be required to be maintained to meet the requirements for the provision of Assessors (and (where applicable) Moderators) under this Service Requirements; • the proposed approach to the training (including the timescales) of Assessors (and any Moderators where permitted in accordance with the Approved Assessment Strategy) which have recent relevant industry experience, including the trajectory that will be required to be maintained to meet the requirements for the provision of Assessors (and (where applicable) Moderators) under this Service Requirements; • the assessment expertise, which will be used to deliver assessment design and processes set out in the Assessment Strategy; and • the occupationally specific subject expertise needed to devise and assess Occupational Specialist Components.

Product	Description
Submission Issues Log	The log of issues raised by the Authority in respect of the Initial TQ Deliverables following a Submission and the Supplier's detailed description of how each such issue has been resolved.
Risk Register	The Supplier's register detailing any events, matters and/or circumstances which it reasonably foresees (acting in accordance with Good Industry Practice) may impact upon and/or risk the successful performance of the Services by the Supplier in accordance with this Contract (or, where the Supplier has failed to create, maintain and/or update such register, such register as would detail such events, matters and/or circumstances if the Supplier was complying with its obligations under this Contract).
Issues Log	The Supplier's log detailing any events, matters and/or circumstances which have occurred and which may impact (or have impacted) upon and/or risk the successful performance of the Services by the Supplier in accordance with this Contract (or, where the Supplier has failed to create, maintain and/or update such log, such log as would detail such events, matters and/or circumstances if the Supplier was complying with its obligations under this Contract).
Provider Approval Criteria	The Supplier's criteria for the approval of Eligible Providers to deliver the TQ which shall: • ensure that the Eligible Provider's ability to deliver the TQ to the required standards and expectations is assessed and verified; • ensure that the expertise of the Eligible Provider to deliver the TQ to the required standards and expectations is assessed and verified; • ensure that resources available to the Eligible Provider to deliver the TQ in line with the required standards and expectations is assessed and verified; • promote accessibility of the TQ to all Eligible Providers; • not impose any undue and/or overburdensome administrative, financial and/or operational requirements and/or require any change in the existing administrative, financial and/or operational aspects of an Eligible Provider's business and/or operations, in either case, which could not reasonably be expected by an Eligible Provider as being strictly necessary to deliver the TQ (having regard to the administrative, financial and/or operational aspects of the business and/or operations within which Providers (operating in the same or substantially similar business and/or operations as the Eligible Provider) operate; • ensure a proportionate and streamlined approach to onboarding the Former Supplier's Approved Providers; and

Product	Description
	• not be inconsistent with and/or lead to a breach of the requirements of clause 7.1 (*Interaction with Providers*).
Assessment Guidance for Providers	Assessment Guidance shall be produced **along with** the specimen assessment materials (SAMs) and will include guidance to ensure that Providers are fully supported to prepare students for assessment. This guidance must include information relating to each component, task or similar activity. Guidance must also include but is not limited to, information on how to prepare for and administer assessments and where applicable, how to submit assessment evidence, guidance on marking and moderation as well as any other information that is required to ensure that students and Providers are fully prepared for assessments. The content must be tailored for each series and identify and expand on the guidance given for all practical assessments. Assessment Guidance must be produced in consultation with a sufficient and representative sample of Providers.

ANNEX 1 – QUALIFICATION PURPOSE

The purpose of the level 3 TQ is to ensure Students have the knowledge, skills and behaviours needed to progress into skilled employment or higher level technical training relevant to the T Level.[8]

To achieve this, each level 3 TQ must:

- provide reliable evidence of Students' attainment in relation to:
    - the core knowledge and skills relevant to the Route and Occupational Specialist Component(s) covered by the TQ; and
    - the knowledge, skills and behaviours required for at least one Occupational Specialist Component relevant to the TQ;
- be up-to-date, ensuring the knowledge, skills and behaviours needed for the Occupations have continued currency among Employers and other end-users;
- ensure maths, English and digital skills continue to be applied where they are essential to achieve occupationally relevant outcomes;
- ensure the minimum pass grade standard for Occupational Specialist Components attests to Occupational Entry Competence, meets employer expectations, and is as close to full occupational competence as possible;
- allow end users to accurately identify Students' level of attainment and effectively differentiate their performance;
- provide a clear and coherent basis for development of suitably demanding high-quality level 3 courses, which enable Students to realise their potential;
- provide Students with the opportunity to manage and improve their own performance; and
- support fair access to attainment for all Students who take the TQ, including those with special educational needs and disabilities.

[8] The Authority may only grant DfE Approval of the qualification "if satisfied that by obtaining the qualification a person demonstrates that he or she has attained as many of the outcomes set out in the standards as may reasonably be expected to be attained by undertaking a course of education" (sA2DA(3) of the 2009 Act).

ANNEX 2 – INTENTIONALLY BLANK

ANNEX 3 – FORMER SUPPLIER'S TQ SPECIFICATION

The TQ Specification content for this Annex is contained in a separate folder - at GEN2W3_ITT_Attachment_11_TQ_Specs

Schedule 2 Annex 3

TQ Spec

T-LEVELS | IfATE Institute for Apprenticeships and Technical Education



T Level Technical Qualification in Maintenance, Installation and Repair for Engineering and Manufacturing

Specification

First teaching from September 2022
Version 1.3

City & Guilds | eal

Qualification at a glance

T Level route	Engineering and manufacturing
T Level pathway	T Level Technical Qualification in Maintenance, Installation and Repair for Engineering and Manufacturing
City & Guilds number	8730 8712
Age group approved	16+
Entry requirements	Formal entry requirements are not set by City & Guilds. However, it is expected that Learners have the appropriate attainment at Level 2 before commencing their studies.
Assessment	Core – knowledge tests are externally assessed Core – employer-set project is externally assessed Occupational Specialisms are externally moderated
First registration	September 2022

Title and level	City & Guilds number	Qualification Number
T Level Technical Qualification in Maintenance, Installation and Repair for Engineering and Manufacturing (Level 3)	8730 – Core 8712 – Occupational Specialism	610/0692/0

Version and date	Change detail	Section
1.1 July 2022	Qualification number added	Qualification at a glance
	Amendment to threshold competence	6. Technical qualification grading and result reporting
1.2 August 2023	Alignment of text in relation to ESP Assessment Objective (AO3) with assessment materials	Core component scheme of assessment Pg 32
	Core skill mapping references amended	Unit 300 Engineering common core
	Typographic error amended	Unit 300, 6.5
	T Level grading table	Awarding the T Level programme grade Pg 47
1.3 February 2024	Physical resource lists expanded	Physical Resources Pg 16
	Availability of assessment dates amended	Availability of Assessments Pg 47
	Range amended	Light & Electric Vehicles Occupational Specialism 1.15 Pg 205

We would like to take this opportunity to thank all the employers, trade associations, professional bodies, providers, subject matter experts and consultants who have dedicated time to review and validate the specifications and TQ documentation. This collaborative work is to ensure that a student studying the Maintenance, Installation and Repair T level has the best opportunities available to them as they progress through their career with a solid base as a starting point.

- Xtrac
- Warren Services
- RJ Power Group
- Thames Water
- National Skills Academy
- Uniper Technology Limited
- RWE Generation UK
- NHS
- Ingenia
- Cleasby Engine Services
- Didactic Services
- SMB Group
- BMW
- Nissan
- N&J Lining
- Denby Pottery
- Amazon
- North London Garages GTA
- Siemens
- EU Skills

The Outline Content for the T Level Technical Qualification in Maintenance, Installation and Repair for Engineering and Manufacturing (Level 3) has been produced by T Level panels of employers, professional bodies based on the same standards as those used for Apprenticeships. The outline content can be found on the institute website:

Maintenance, Installation and Repair Outline Content

City & Guilds has amplified the Outline Content to create the Technical Qualification specifications.

Contents

Qualification at a glance		**2**
1	**Introduction**	**8**
	What is this qualification about?	8
	Key information	10
	T Level structure	11
	Technical qualification structure	11
2	**Centre requirements**	**13**
	Approval	13
	Resource requirements	14
	Physical resources	16
	Internal quality assurance	23
	Supervision and authentication of candidate work	23
	Learner entry requirements	23
3	**Delivering the technical qualification**	**24**
	Initial assessment and induction	24
	Programme delivery	24
4	**Competency frameworks**	**25**
	Core skills	25
	Maths, English and digital skills	29
5	**Scheme of assessment**	**30**
	Assessment methods	30
	Grading and marking	30
	Technical qualification scheme of assessment overview	31
	Core component scheme of assessment	32
	Scheduling of the Employer-set project assessments	39
	Occupational Specialism component scheme of assessment	40
	Availability of assessments	47
6	**Technical qualification grading and result reporting**	**48**
	Awarding the technical qualification grade	48
	Awarding the T Level programme grade	50
7	**Administration**	**51**
	Factors affecting individual learners	51
	Malpractice	51
	Accessibility	52
	Access arrangements	52
	Special consideration	52
	Informing candidate of pre-moderated marks	53

Internal appeals procedure 53
Results reporting 53
Post-results services 53
8 Components 54
Content of components 54
300 Engineering common core content 55
What is this component about? 55
Content 57
Guidance for delivery 81
311 Maintenance engineering technologies: Mechanical 83
What is this specialism about? 83
Specialism content 85
Underpinning knowledge criteria for the performance outcomes 85
Practical criteria for performance outcomes 94
Guidance for delivery 105
Scheme of Assessment – Maintenance engineering technologies: Mechanical 106
312 Maintenance engineering technologies: Mechatronic 110
What is this specialism about? 110
Specialism content 112
Underpinning knowledge criteria for the performance outcomes 112
Practical criteria for performance outcomes 122
Guidance for delivery 133
Scheme of Assessment – Maintenance engineering technologies: Mechatronic Occupational Specialism 134
313 Maintenance engineering technologies: Electrical and electronic 139
What is this specialism about? 139
Specialism content 141
Underpinning knowledge criteria for the performance outcomes 141
Practical criteria for performance outcomes 150
Guidance for delivery 161
Scheme of Assessment – Maintenance engineering technologies: Electrical and Electronic 162
314 Maintenance engineering technologies: Control and instrumentation 167
What is this specialism about? 167
Specialism content 169
Underpinning knowledge criteria for the performance outcomes 169
Practical criteria for performance outcomes 180
Guidance for delivery 191
Scheme of Assessment – Maintenance engineering technologies: Control and Instrumentation 192
315 Light and electric vehicles 197
What is this specialism about? 197
Specialism content 199

	Underpinning knowledge criteria for the performance outcomes	199
	Practical criteria for performance outcomes	210
	Guidance for delivery	222
	Scheme of Assessment – Light and Electric Vehicles	223
Appendix 1	**Maths, English and digital skills**	**227**
Appendix 2	**Sources of general information**	**228**

1 Introduction

What is this qualification about?

The following purpose statement relates to the **T Level [1] Technical Qualification in Maintenance, Installation and Repair for Engineering and Manufacturing (Level 3)**

Area	Description
OVERVIEW	
What is a T Level?	T Levels are new courses which will follow GCSEs and will be equivalent to three A Levels. These two-year courses have been developed in collaboration with employers and businesses so that the content meets the needs of industry and prepares learners for work. T levels are one of three post 16 options for young people which are: • A Levels • Apprenticeships • T Level
How does the Technical Qualification work within the T Level?	This Technical Qualification specification contains all the required information you need to deliver the qualification in the T Level Technical Qualification in Maintenance, Installation and Repair for Engineering and Manufacturing (Level 3) The Technical Qualification forms a significant part of the T Level Technical Qualification in Maintenance, Installation and Repair for Engineering and Manufacturing (Level 3). City & Guilds are responsible for the development and ongoing operational delivery of this Technical Qualification. All other parts of the T Level as listed below will need to be achieved by a Learner for the Department for Education to award the successful completion of this T Level. It is important to note that City & Guilds do not have responsibility of delivery for the other parts of the T Level but will continue to support centres where they can on all aspects of T Level delivery. Additional mandatory parts of the T Level that need to be achieved: • An industry placement of 315 – 350 hours (45 – 50 days).
Who is this qualification for?	This qualification is for you if you are a 16-19-year-old learner, who wishes to work within the engineering industry.

[1] T Level is a registered trade mark of the Institute for Apprenticeships and Technical Education

	It has been designed to deliver a high level of knowledge about the engineering industry as well as the occupational skills required to enter the industry (known as 'threshold competence'). A learner who completes this qualification is well placed to develop to full occupational competence with the correct support and training.
What does this qualification cover?	The qualification will help you gain an understanding of the engineering industry and the sector and you will cover topics such as: • Maintenance, installation and repair requirements • Fault detection and diagnosis • Isolation and resolution methods • Communication for maintenance, installation and repair activities A learner will have the choice of studying one standalone Occupational Specialism as listed below: • Mechanical • Mechatronic • Electrical and electronic • Control and instrumentation • Light and electric vehicles Centres and providers work with local employers who will contribute to the knowledge and delivery of training. Employers will provide demonstrations and talks on the industry and where possible work placements will also be provided by the employers.
WHAT COULD THIS QUALIFICATION LEAD TO?	
Will the qualification lead to employment, and if so, in which job role and at what level?	This technical qualification focuses on the development of knowledge and skills needed for working in the Engineering industry, which will prepare learners to enter the industry through employment or as an Apprentice. Furthermore, the completion of this qualification gives the learner the opportunity to progress onto higher education courses and training.
Why choose this qualification?	This technical qualification will suit someone who is not yet employed or looking to enter the industry post mainstream education. The structure of the qualification is designed to give learners the breadth of knowledge and understanding across the Engineering industry but also equips them with necessary occupational and core skills to enter the industry. This qualification is designed to support fair access and allows learners to manage and improve their own performance.
WHO SUPPORTS THIS QUALIFICATION?	
Employer route panels	The content of this qualification is outlined by a representative panel of employers from across the industry sector. It therefore prescribes the minimum knowledge and skills required to enter the industry. The content in this specification is approved by the Institute for Apprenticeships and Technical Education (IfATE).

Key information

Below is a summary of the key information provided to centres to support delivery of this technical qualification.

Guided learning hour (GLH) value

This value indicates the average number of guided learning hours a unit will require for delivery to a learner. This includes contact with tutors, trainers or facilitators as part of the learning process, and includes formal learning such as classes, training sessions, coaching, seminars and tutorials. This value also includes the time taken to prepare for, and complete, the assessment for the unit. Guided learning hours are rounded up to the nearest five hours.

Total qualification time (TQT) value

This is the total amount of time, in hours, expected to be spent by a learner to achieve a qualification. It includes both guided learning hours (which are listed separately) and hours spent in preparation and study.

Criteria

This section of the specification outlines the subject or topic that needs to be delivered and assessed. Criteria are often supported by **'range'** which provides the detail of the information required to be delivered as part of that topic. For example, with 'Design processes' as the topic, the range would list the processes that would need to be covered in delivery and assessment.

What do learners need to learn?

The primary purpose of these sections is to support the delivery of the content in the criteria. These sections provide context in relation to the depth and breadth to which a subject or topic needs to be taught.

Skills

This section provides a mapping reference to the core, maths, English and digital skills that are embedded within the technical qualification content.

Example

1.3 Fundamentals of **common mechanisms** and **lifting equipment.**

Range:
Mechanisms – gears (characteristics of gears including teeth, root, pitch, meshing, backlash), gear box, gear trains, governors, levers, brakes, friction devices/clutches (mechanical, hydraulic, electromagnetic), structural components (frames, bearings, springs).
Lifting equipment – pulleys, jacks, cranes, hoists.

What do learners need to learn?	Skills
The functions of common mechanisms. The application of lifting equipment and mechanisms, and how they operate. Types of gear trains, including compound gears and the role of idler gears. Identify ties and struts in frames. Simple harmonic motion of springs. Factors of safety, including safe working loads, when working with lifting equipment.	EC5, MC6.

T Level structure

To achieve the T Level learners must meet all requirements of the T Level framework of which the technical qualification is one part. Learners have to successfully complete an industry placement and any other requirements set by the Institute for Apprenticeships and Technical Education (IfATE) such as licence to practice qualifications.

Technical qualification structure

The technical qualification is made up of **two** components all of which need to be successfully achieved to attain the technical qualification as well as the full T Level Technical Qualification in Maintenance, Installation and Repair for Engineering and Manufacturing (Level 3).

The common core component:

The core content is designed to offer sufficient breadth of knowledge and skills for the learner to apply in a variety of contexts related to the engineering industry and those Occupational Specialisms linked to this T Level.

The common core content is the building blocks of knowledge and skills that will give a learner a broad understanding of the industry and job roles. At the same time, it will develop the core skills they will need to apply when working within the industry.

Occupational Specialisms:

Occupational Specialisms develop the knowledge, skills and behaviours necessary to achieve threshold competence in an occupation. Threshold competence is defined as when a learner's attainment against the knowledge, skills and behaviours is of a standard for them to enter the occupation and industry. They must also demonstrate the ability to achieve occupational competence over time with the correct support and training.

To achieve the **T Level Technical Qualification in Maintenance, Installation and Repair for Engineering and Manufacturing (Level 3) (delivered by City & Guilds)** learners must complete the **two** components of the Technical qualification. These are known as the core component and the Occupational Specialism:

- (300) plus **one** from (311 – 315)

T Level Technical Qualification in Maintenance, Installation and Repair for Engineering and Manufacturing (Level 3)					
Programme of Study (POS) number	**City & Guilds component number**	**Component title**	**Component level**	**GLH**	**TQT**
Mandatory					
8730-30	300	Engineering common core	Level 3	680	1000
Choose one standalone Occupational Specialism					
Standalone					
8712-31	311	Maintenance engineering technologies: Mechanical	Level 3	680	1000
8712-32	312	Maintenance engineering technologies: Mechatronic	Level 3	680	1000
8712-33	313	Maintenance engineering technologies: Electrical and Electronic	Level 3	680	1000
8712-34	314	Maintenance engineering technologies: Control and Instrumentation	Level 3	680	1000
8712-35	315	Light and Electric Vehicles	Level 3	680	1000

2 Centre requirements

Approval

All eligible providers must obtain Full Provider Approval with City & Guilds prior to delivering any T Level Technical Qualification (TQ).

Provider approval is not equivalent to centre approval; any provider which is already an existing City & Guilds approved centre must still obtain Full Provider Approval in the first instance. There is no fast-track approval for these qualifications.

Once successfully approved, providers can apply for additional TQs or apply to add additional occupational specialisms (OS) during each approval window.

The approval application consists of a comprehensive set of approval criteria agreed with the Institute to ensure an eligible provider is fit and ready to deliver T Level Technical Qualifications.

These criteria seek to ensure the integrity of the qualifications for both City & Guilds and the Institute. They must be adhered to throughout the delivery of the TQ and will be reviewed at the annual self-assessment.

Criteria A Management Systems
Criteria B Industry placement
Criteria C Resources
Criteria D Delivery
Criteria E Secure live assessment and administration
Criteria F Assessment and standardisation plan
Criteria G Conflicts of Interest (COI)

Please refer to our published provider approval and quality assurance information document available on our website here. This document includes information around the approval process, criteria for approval and the timeline for the relevant academic year.

Resource requirements

Centre staff should familiarise themselves with the structure, content and assessment requirements of the qualification before designing a course programme.

Centre staffing

Staff delivering and assessing these qualifications must be able to demonstrate that they meet the following requirements. They should:

- be occupationally competent and qualified at or above the level they are delivering
- have maths and English at Level 2 or be working towards this level of qualification
- be able to deliver across the breadth and depth of the content of the qualification being taught
- have recent relevant teaching and assessment experience in the specific area they will be teaching, or be working towards this
- demonstrate continuing CPD
- have experience or training in the following to support the delivery of this technical qualification:
    - delivering project-based qualifications
    - preparation for exam-based assessments.

Engineering common core

Staff who are familiar with L3 Engineering and Manufacturing qualifications will be able to teach the core elements.

Occupational Specialisms specific requirements

Maintenance engineering technologies: Mechanical

Level 3 or above engineering qualification or equivalent. Industrial experience or relevant CPD that demonstrates the occupational and technical competence to deliver the requirements for this specialism.

Maintenance engineering technologies: Mechatronic

Level 3 or above engineering qualification or equivalent. Industrial experience or relevant CPD that demonstrates the occupational and technical competence to deliver the requirements for this specialism.

Maintenance engineering technologies: Electrical and Electronic

Level 3 or above engineering qualification or equivalent. Industrial experience or relevant CPD that demonstrates the occupational and technical competence to deliver the requirements for this specialism.

Maintenance engineering technologies: Control and Instrumentation

Level 3 or above engineering qualification or equivalent. Industrial experience or relevant CPD that demonstrates the occupational and technical competence to deliver the requirements for this specialism.

Light and Electric Vehicles

Level 3 or above engineering qualification or equivalent. Industrial experience or relevant CPD that demonstrates the occupational and technical competence to deliver the requirements for this specialism.

It is recommended that staff assessing these qualifications must meet the above requirements and hold or be working towards a relevant recognised assessor qualification such as a Level 3 Certificate in Assessing Vocational Achievement and continue to practise to that standard. Assessors who hold earlier qualifications (D32, D33 or TQFE/TQSE) should have CPD evidence that meets current standards. Assessors must also hold a relevant trade qualification and/or have registration with a relevant trade organisation as 'Approved Tradesperson' or have 'Eng-Tech' status.

Physical resources

Centres must be able to demonstrate that they have access to the equipment and technical resources required to deliver this qualification and its assessment.

Common resources

- Virtual modelling and CAD software
- PPE
- Scientific calculator
- Technical documentation (digital or hard copy)
- Electrical / electronic equipment
- Measurement devices, instrumentation and gauges
- Machines
- Systems
- Materials
- Mechanisms
- Tools and equipment
- Devices and components
- Consumables
- Fixtures and fittings
- Testing and diagnostic equipment
- Video camera
- Camera
- Workshop (to include waste disposal facilities)
- ICT equipment and software

Maintenance engineering technologies: Mechanical

- Technical documentation - health and safety regulations, organisational procedures, quality inspection policies/ procedures, workshop/maintenance manuals, manufacturers specifications, maintenance schedules, maintenance instructions, inspection and test record sheets, equipment data sheets, material safety data sheets (MSDS), engineering drawings (exploded diagrams, schematics, component diagrams), maintenance reports/records/logs, test data/results/certificates, diagnostic information, standard operating procedures (SOP), method statements/planning sheets, risk assessments, permit to work, handover sheets.
- Materials – ferrous, non-ferrous (titanium and alloys), thermosetting polymers, thermoplastics, composites (CRP and GRP), smart materials (shape memory alloy (SMA), piezoelectric, quantum tunnelling composite (QTC), photochromic and thermochromic pigments).
- Machines (and associated tooling) - manual and computer numerical control (CNC), drills (pillar and bench), centre lathe, milling machine, linisher/belt sander, compressor.
- Work holding devices - machine vice, clamps, chucks, machine vice, jigs and fixtures.
- Systems and mechanisms - drive devices (motors, belts, shafts), gears, gear trains, gearbox, clutches (mechanical, electronic, fluid), pulleys, torque convertors, governors, rams/cylinder (pneumatic, hydraulic), braking systems, cams, linkages, levers, woodruff keys, cooling systems, lubrication (manual, gravity feed, forced, splash), structural components (frames, tie-bar, struts).
- Lifted components - bushes, bearings, belts, o-rings, oil seals, circlip, gaskets.
- Fastenings - nuts, bolts, screws, washers, shims, rivets, rivet nut, grease nipples/points.
- Consumables - lubricants, coolants.

- Lifting equipment - lifts, pulleys, jacks, hoists, chains, slings, D-shackles, eye bolts.
- Tools and equipment (hand and power) – spanners, wrenches/sockets (ratchet, universal joints, extension bars), screwdrivers, pry bars, punches, chisels, hacksaw, mole grips, side cutters, files, hammers, mallets, crimpers, taps and dies, jigsaw, angle grinder, drills, pliers, Allen keys, bearing pullers, metal vice, reciprocating saw, multitool.
- Measuring and diagnostic tools and equipment - steel rule, vernier callipers (internal, external, digital), micrometres (internal, external, depth), diagnostic test equipment (fault codes reader/scan tool), dividers/callipers, squares (engineer, combination), gauges (feeler, pressure, slip, height, thread, plug), dial tester indicator (DTI), multimeter, thermometer (contact and non-contact), thermocouples, coordinate measuring machine (CMM), laser level, comparison plates.

Maintenance engineering technologies: Mechatronic

- Technical documentation - standards and regulations, organisational procedures, manufacturers' catalogues and data sheets, material safety data sheets (MSDS), Maintenance manuals, instructions and schedules, inspection and test record sheets, test and calibration certificates, technical drawings (schematics, block diagrams, exploded diagrams, wiring diagrams), bill of materials (BoM), method statement, Standard operating procedures (SOP), risk assessments, permits to work.
- Electrical and Electronic devices and components – resistors, potentiometers, capacitors, inductors, switches (single pole single throw (SPST), single pole double throw (SPDT), double pole single throw (DPST), double pole double throw (DPDT), contact, reed, limit), transistors, operational amplifiers, diodes (Zener, photodiodes, light emitting diodes (LED's)), microprocessors, microcontrollers and integrated circuits (logic gates (AND, OR, NOT, NAND), counters, comparators and timers), speakers and buzzers, actuators, motors (electrical and mechanical), solenoids, relays, transformers, generators, invertors, thyristors, rectifiers, fuses, circuit breakers, residual current devices (RCD), circuit board (printed circuit board (PCB), breadboard), wiring and cables (single core, multicore, armoured, fire resistant, flexible, non-flexible), connectors, visual display units (VDU), surface mount technology (SMT), AC-DC converters.
- Control devices – programmable logic controllers (PLC), Human machine interface (HMI), electronic control unit (ECU).
- Software - Programming languages and software (for microcontrollers, PLCs, electronic circuit and PCB design), basic input/output system (BIOS), operating systems, AI.
- Digital technologies - laptops, tablets, mobile applications, personal digital assistant (PDA).
- Mechanical devices and components - levers, rams, gears, gear trains, gear box, clutches, pulleys and belts, governors, pulleys, rams/cylinders (air/hydraulic), valve blocks, pumps (mechanical, electronic, electrical, pneumatic) structural components (frames, bearings, springs, bushes, fixings), tensioning devices.
- Sensors – switches, photodiodes, photoresistors/light dependent resistors (LDR), thermistors (PTC, NTC), thermocouples, ultrasonic proximity sensors, capacitive and inductive sensors, piezoelectric, strain gauges, pressure pads, microphone, flow gauge, hall effect, accelerometer, sight glass.
- Machines – drills, lathes, milling machines and routers, manual and computer numerical control (CNC), robotics (SCARA, polar, cartesian, articulated).
- Machine tooling – drill bits, chucks, steadies, lathe cutting tools, boring bars, taps and dies, reamers, milling cutters.
- A range of systems – gearbox, cams and followers, pulleys, levers, actuation, cooling, lubrication, integrated systems, robotics, integrated circuits, amplifiers, power supplies, sequential, asynchronous/synchronous logic, programmable systems, data logging and measurement systems, automation, AC and DC units, pump.
- Consumables – lubricants, coolants, solder, surface treatment.

- Tool and equipment (hand and power) spanners, wrenches, sockets (ratchet, universal joints, extension bars), screwdrivers, pry bars, punches, chisels, hacksaw, metal vice, pliers, snips, wire strippers, wire cutters, soldering iron, de-soldering tool, mole grips, side cutters, bolt cutter, files, hammers, mallets, Allen keys, crimpers, drills, riveter, jigsaw, reciprocating saw, multitool, angle grinder, metal guillotine, metal vice, PCB etching,
- Lifting equipment - hoist, jacks, chains, slings, D-shackles, eye bolts.
- Measurement and diagnostic tools and equipment - micrometers, Vernier callipers, rules, multimeters, oscilloscopes, signal generators, logic probes, data logger, analysers (logic, dewpoint, hygrometers, hydrometers, thermometer), clamp meters, pressure gauges, temperature measurement devices, engineers try square, diagnostic testers, coordinate measuring machines (CMM), residual temperature devices (RTD's).
- Measures of protection - ESD-safe bags and foam, grounding mats, straps and tools, antistatic garments, wrist straps.
- Materials – metals (ferrous and non- ferrous), thermosetting polymers, thermoplastics, composites (CRP and GRP), smart materials (shape memory alloy (SMA), piezoelectric, quantum tunnelling composite (QTC), photochromic and thermochromic pigments).
- Fixings and fastenings - screws, nuts, bolts, cable ties, rivets.

Maintenance engineering technologies: Electrical and Electronic

- Technical documentation - Standards and regulations, maintenance manuals and instructions, material safety data sheets (MSDS), manufacturer data sheets, manufacturer specifications, technical manuals, maintenance logs, schematic diagrams, wiring diagrams, block diagrams, circuit diagrams, engineering drawings, bill of materials (BoM), risk assessments, method statements, standard operating procedure (SOP), permit to work, inspection and test record sheets.
- Devices and components – transistors (bi-polar (NPN, PNP), field effect (MOSFET, JFET)) complementary metal oxide semiconductor (CMOS), thyristors, operational amplifiers, microcontrollers and integrated circuits (logic gates (AND, OR, NOT, NAND, NOR, XOR), counters and timers), switches (single pole single throw (SPST), single pole double throw (SPDT), double pole single throw (DPST), double pole double throw (DPDT), contact, reed), diodes (P-N junction, Zener, photodiodes, light emitting diodes (LED)), rectifiers, capacitors (polarised, non-polarised, super-capacitors), resistors and potentiometers, inductors, relays, transformers, wiring and cables (single core, multicore, armoured, fire resistant, flexible, non-flexible), photovoltaic cells, electrical power outlets (three pin plug outlet, USB charging points, indoor, outdoor), speakers and buzzers, motors (servo, stepper, DC/linear, solar).
- Protection devices – residual current device (RCD), fuses, immobilisers, circuit breakers, isolators.
- Systems and circuits – power supplies, AC and DC units, series, parallel, series-parallel, closed, open circuits, power, amplifiers, timer, latching, pulse generation circuits, auxiliary, modulators, inverters, regulator, electrical motors, modulators, control units, sensing units, convertors, Wheatstone bridge/comparator.
- Tools and equipment - drills, pliers, insulated tool sets (wire cutters, wire strippers, pliers, screwdrivers), soldering irons, de-soldering tool, spanners, wrenches, files, hammers, Allen keys, crimping tools, potentiometer trimmers.
- Measurement and test equipment - multimeters, clamp meters, diagnostic testers, micrometers, engineer's rule, Vernier callipers, oscilloscopes, signal and function generators, logic probes, data loggers, logic pulser, insulation resistance testers, frequency meters, wire gauge.
- Anti-static protection measures - ESD-safe bags and foam, grounding mats, straps and tools, anti-static garments, wrist straps.

- Sensors – switches, photodiodes, photoresistors/light dependent resistors (LDR), thermistors (PTC, NTC), thermocouples, ultrasonic proximity sensors, piezoelectric, strain gauges, pressure pads, microphone, flow gauge, hall effect, accelerometer, sight glass.
- Materials –metals (non-ferrous, ferrous), thermosetting polymers, thermoplastics, composites (CRP and GRP), smart materials (shape memory alloy (SMA), piezoelectric, quantum tunnelling composite (QTC), photochromic and thermochromic pigments).

Maintenance engineering technologies: Control and Instrumentation

- Technical documentation - wiring diagrams, component datasheets, manufacturers specifications, material safety data sheet (MSDS), recording forms, manufacturers recommended procedures, operation and maintenance manuals/instructions, technical manuals, diagrams (circuit, block, schematic, wiring) maintenance logs, defect logs, reports, statements, checklists, data, test data, inspection sheets, method statements, risk assessments, bill of materials (BoM), standard operating procedures (SOP), test certificates, permits to work, organisational procedures, standards and regulations, representations (drawings, symbols, annotations, conventions, standards, reports, results, statements, signage, tags, labels, data plates), recall instructions.
- Sensors - switches, photodiodes, photoresistors/light dependent resistors (LDR), thermistors (PTC, NTC), thermocouples, ultrasonic proximity sensors, piezoelectric, strain gauges, pressure pads, microphone, flow gauge, hall effect, accelerometer, sight glass, seismic sensor, turbidity sensor.
- Components - visual display units (VDU), human machine interface (HMI), potentiometers, power supply units, transmitters, transducers, 4-20mA loops, alarms, trips, bulbs, lamps, solenoids, relays, fuses, circuit breakers, power source, gauges, indicators, controllers, motors (electric, stepper, invertor, servo, induction, brushed, brushless, AC, DC, three phase, single phase), generators, diodes, Zener, photodiodes, light emitting diodes (LED), AC – DC convertors, DC-AC convertors, DC-DC convertors, transformers, resistors, capacitors, inductors, residual current device (RCD), transistors, immobilisers, actuators, potentiometers, logic gates (AND, OR, NOT, NAND, NOR), isolators, push buttons, safety devices, filters, pipes, cable trays, isolators, transformers, guards, pipework, valves, manifolds, electrical supplies, air supplies, fluid supplies, communication equipment.
- Sensing technologies - inductive, capacitive, hall effect, piezoelectric transducers, automatic, proximity.
- Systems and circuits – Electrical/electronic systems, emergency, shutdown, control, feedback, analogue, digital, measurement, indicator, power, timing, latching, auxiliary, modulators, control units, microprocessors, microcontrollers, sensing units, output devices, DC networks, robotics (polar and Cartesian), inverters, control panels, regulators, rectifiers, rotary convertors, frequency control, power electronics and supplies, integrated circuits, Wheatstone bridge, amplifiers (operational, op-amps, sequential and asynchronous/synchronous logic, programmable systems, programmable logic controller (PLC), proportional integral derivative controller (PID), series, parallel, series-parallel, open and closed circuits, latching, timers, auxiliary, printed circuit boards (PCBs), surface mount technology (SMT), Drive devices - adjustable drive devices, hardware, motors, pumps, belts, rams, gear trains, gearboxes, clutches, modulators, AC and DC units, output devices, flywheels.
- Network systems and requirements – supervisory control and data acquisition (SCADA), distributed control system (DCS), process control system (PCS), electronic software distribution (ESD), safety instrumented systems (SIS), controller area network (CAN) bus, process field bus (Profibus), process field net (Profinet), foundation fieldbus (FF), Modbus (485, remote terminal unit (RTU)), device net, fibre optic networks, wireless systems, network LAN, ethernet, Bluetooth connectivity, fibre glass systems (FGS), bridges, bus interface, cables (RS485, RS422, RS232, ribbon, USB), adaptors, communication, control modules, devices, network, control loop, internet connection.

- Tools and equipment - screwdrivers, spanners, hammers, Allen keys, wrenches, pliers, files, mole grips, side/wire cutters, wire strippers, crimping tool, potentiometer trimmer, drills, air compressors, soldering and de-soldering equipment, multi-function calibrators, highway addressable remote transducer (HART), pressure sources, temperature baths, clamp meters, loop calibrator, digital technologies (laptops, tablets, mobile applications, personal digital assistant (PDA)).
- Measurement and diagnostic tools and equipment - multimeters, oscilloscopes, signal generators, thermocouples, thermal cameras, residual temperature devices (RTDs), venturi tubes, orifice plates, data logging, analysers (logic, dewpoint, hygrometers, hydrometers, thermometer), proximity, Logic probes, electronic control unit (ECU), diagnostic testers, flow meters, portable appliance tester (PAT tester), micrometers, Vernier callipers, rule.
- Software - Programming languages and software (for microcontrollers and PLCs), basic input/output system (BIOS), operating systems, AI.
- Fixings, fasteners and consumables- mechanical fixings/fastening, solder, adhesives, conduits, block connectors, lubricants.
- Materials - non-ferrous metals, ferrous metals, thermosetting polymers, thermoplastics, composites (CRP and GRP), smart materials (shape memory alloy (SMA), piezoelectric, quantum tunnelling composite (QTC), photochromic and thermochromic pigments).

Light and Electric Vehicles

- Technical documentation - vehicle technical data, maintenance manuals and instructions, manufacturers specifications, service information sheets/records, risk assessment, Calibration certificates/Portable Appliance Testing (PAT), technical representations (schematic/circuit/wiring/assembly drawings), inspection record sheets, vehicle referencing and numbering systems (vehicle registration number, part numbers (original equipment manufacturer (OEM), after-market), vehicle identification numbers (VIN), tyre specification (construction, size, width, direction of rotation, aspect ratio, speed rating, load rating, ply type), wiring identification (low voltage, high voltage), wheel alignment specifications, standards, regulations and policies, fault data/codes, reports, measurements, manufacturers technical bulletins, electronic document and management systems, permit to work, electrical and electronic component symbols, test results, job cards, environmental requirements, organisational procedures, customer information, performance data and diagnostic information, preparatory checks, standard operating procedures (SOP).
- Vehicles – selection of petroleum, diesel (including common rail) and full hybrid/electric vehicles with a high voltage system that learners can work on (mild hybrid vehicles without a high voltage system cannot be used, i.e. stop start).
- Automotive training rigs - transmission systems, chassis systems, electrical & electronics, selection of different engine arrangements.
- Power sources and units – petrol/diesel, hydrogen, battery electric vehicle (BEV), Hybrid electric vehicle (HEV), Plug -in hybrid electric vehicle (PHEV), Fuel cell electric vehicle (FCEV), volts, kilowatt hours (kWh), horsepower, torque.
- Engine types – engine configuration (longitudinally mounted, transverse, front, mid and rear engines) cylinder arrangements, cylinder configuration (in-line, vee, W, horizontally opposed), engine cycle (four stroke, Atkinson, Otto), hybrid layout system, spark ignition (SI), compression ignition (CI), rotary.
- Systems
    - engine (pistons, belts, chains, bearings, shafts),
    - ancillary systems (fuel, lubrication, cooling),
    - transmission - clutch (mechanical, electronic, hydraulic), torque convertor, drivetrain), manual and automatic gearboxes axles, differential, gear reduction systems, gears, gear trains, flywheel
    - electrical and electronic management system - Electronic Control Unit (ECU), motors, modulators, control units (mechanical, electro-mechanical, electrical, electronic, instrumentation, engine/powertrain), controller area network (CAN bus),

sensors, actuators, AC and DC units, lighting, wiper, security and alarm, electric window, monitoring and instrumentation, voltage and current sources, alternator (diodes, rectifiers, voltage regulator, stator and rotor), inventors, DC-DC convertors, single phase, three phase, DC networks, lighting circuits (lamps, light emitting diodes (LED), incandescent, halogen, xenon, high intensity discharge (HID)), cables, wiring looms, electrical power outlets, USB charging points, relays, potentiometers, power supply units, circuit breakers, immobiliser, capacitors (polarised, non-polarised) resistor, inductor, transformer, transistors (bipolar (NPN, PNP)),
    - chassis (steering, suspension, braking, wheels, tyres),
    - heating, ventilation and air conditioning (HVAC) (refrigerant removed)
    - antilocking braking system (ABS), brakes hydraulic (brakes discs, brake pads, brake fitting kit, brake drums, brake shoes, wheel cylinders)
    - batteries (lithium-ion, nickel metal hydride (NiMH), lead acid, auxiliary), battery cell modules.
- Mechanisms – governors, levers.
- Structural components - frames, bearings, springs, bushes.
- Sensing and sensing technologies - engine load, temperature, speed/position, pressure, knock, air and fuel parameters, exhaust emissions/lambda, inductive, Hall effect, optical, variable resistors, negative temperature co-efficient (NTC) and positive temperature co-efficient (PTC), security/warning systems.
- Tools and equipment (hand and power) - spanners (open ended, ring, combination), screwdrivers, Allen keys, ratchets and sockets (metric hex and imperial hex, bi-hex, socket drive sizes (1/4, 3/8 and ½ inch), universal joints, extension bars), hammers, mallets, files, cold chisels, punches, clamps, pliers, hacksaws, crimping tools, measuring tools (engineers' rule, micrometer (internal, external, depth), hydrometer, Vernier callipers), feeler gauge, angle gauges, torque wrench, tyre tread depth gauge, spark plug adaptor, hand diagnostic equipment, vehicle specific tools, refractometer, electric and hybrid tool set (insulated), impact wrenches, drills (compressed air/electric), power tools (cordless drill, hammer drill, electric screwdriver, compressed air driven tools) liquid draining equipment, metal vice.
- Lifting equipment – jacks (pneumatic, hydraulic, mechanical, scissor, trolley, bottle, ramps, transmission), hoists, crane, axle/vehicle stands, pullers, chain blocks.
- Measurement and diagnostic tools and equipment - diagnostic analysers, data logging/self-diagnosis equipment, dial tester indicator (DTI), emissions testers, frequency meter, hydraulic pressure, thermal checks, torque devices, testers (coolant, brake fluid, battery, discharge, diagnostic, compression, cooling system pressure, fuel pressure, oil pressure, vacuum gauge, emission), wheel alignment, beam setting, roller brake efficiency tester/rolling road, European on-board diagnostic (EOBD2) compliant, multimeters, oscilloscopes, battery chargers, compressors.
- Vehicle protective equipment (VPE).
- Specialist PPE - auto-darkening welding helmet, air-fed welding helmet, welding jacket or apron, welding shoes/boots, gloves, safety glasses, ear plugs or ear defenders, mask or respirator, Electrical Vehicle PPE.
- Health and Safety signage and equipment (including spill kit/absorbent granules).
- Service parts - filters (pollen, air, oil, fuel), fluids (oil, transmission, power steering, coolant, screen wash, brake fluid, anti-freeze).
- Replacement parts – wiper blades, spark plugs, batteries, remote/intelligent key/fob battery, bulbs/lamps.
- Workshop machinery – pillar drill, bench grinder, hand drill, bearing puller.
- Joining and Welding equipment - bonding equipment (adhesive (anaerobic, cyanoacrylate, epoxy, plastisol, polyurethane, solvent rubber), friction, fusion, composites, fasteners (threaded fixings (bolts, studs, set screws, self-tapping screws), non-threaded fixings (rivets (snap head, pan head, countersunk heads, pop rivets)), nuts, washers, pins, plastic, joint configurations (self-secured, lap joints, flanged joints grooved seams, double grooved

seams, knocked up, panned down, slip joints, flexible joints, threaded joints)) spot welding, flux, clamps, magnets, sheet metal gauge, conduit, electrode, wire and electrode feed system (pinch rolls, push-pull, spool on gun), gun, angle grinder, wire brush, cables, fume extractors, local exhaust ventilation systems (LEV), metal inert gas (MIG) rig, gas shielded metal arc (MAG) welding rig, manual metal arc (MMA), resistance/spot welder, tungsten inert gas (TIG) welding, gas (brazing, soldering), plasma cutting.

- Materials - ferrous, non-ferrous, thermosetting polymers, thermoplastics, composites (CRP and GRP), smart materials (shape memory alloy (SMA), piezoelectric, quantum tunnelling composite (QTC), photochromic and thermochromic pigments.

Internal quality assurance

Internal quality assurance is key to ensuring accuracy and consistency of tutors and assessors. Internal quality assurers (IQAs) monitor the work of all tutors involved with a qualification to ensure they are applying standards consistently throughout assessment activities. IQAs must have, and maintain, an appropriate level of technical competence and be qualified to make both marking and quality assurance decisions through a teaching qualification or recent, relevant experience.

Supervision and authentication of candidate work

The Head of Centre is responsible for ensuring that assessment evidence is conducted in accordance with City & Guilds' requirements.

City & Guilds requires:

- candidates to sign the Declaration of authenticity form to confirm that any work submitted is their own
- tutors to confirm on the record form that the work submitted for assessment is solely that of the candidate concerned and was conducted under the conditions laid down in the assessment documentation

The tutor must be sufficiently aware of the candidate's standard and level of work to make a judgement whether the work submitted is within the expected ability and style of the candidate or whether a further investigation into the authenticity of the work is required.

If the tutor is unable to sign the authentication statement for a particular candidate, then the candidate's work cannot be accepted for assessment.

Learner entry requirements

Centres must ensure that all learners have the opportunity to gain the qualification through appropriate study and training, and that any prerequisites stated in the **What is this qualification about?** section are met when registering for this qualification.

Formal entry requirements are not set by City & Guilds, but it is expected that learners will have qualifications at Level 2 or equivalent. This may include:

- Level 2 vocational qualification or equivalent in a related subject.

3 Delivering the technical qualification

Initial assessment and induction

An initial assessment of each learner should be made before the start of their programme to identify:

- if the learner has any specific training needs
- support and guidance they may need when working towards their qualification
- the appropriate type and level of qualification.

City & Guilds recommends that centres provide an introduction so that learners fully understand the requirements of the qualification, their responsibilities as learners, and the responsibilities of the centre. This information can be recorded on a learning contract.

Programme delivery

The technical qualification should be delivered through approaches that meet the needs of learners. City & Guilds recommends using a variety of delivery methods, including in classrooms and real work environments. Learners may benefit from both direct instruction in more formal learning environments and taking part in investigative projects, e-learning and their own study and learning through indirect approaches to delivery.

4 Competency frameworks

The technical qualification has been developed to include competency frameworks for T Levels, which demonstrate an array of competencies across maths, English and digital skills as well as four key core skills that have been mapped on to the core content. This can be seen in the skills section for each criterion.

Core skills

In the design, delivery and assessment of the technical qualification the following core skills are fundamental in the development of the required knowledge, skills and behaviours that learners will need to use when they progress onwards from completing their T Level. These core skills have been mapped to the design of the qualification content and developed in consultation with the industry and providers. The mapping identifies opportunities where these core skills can be developed and embedded into teaching and learning. It is not expected that all criteria will develop core skills, but where these skills exist in the core content it has been referenced to support centres.

Core Skill A (MIR-CSA) - Analysing and interpreting an employer-set brief

- Evaluate and confirm the brief with reference to context, objectives and constraints (eg requirements, resources, precedents, technical issues, costs, health and safety, regulations, possibilities)

Core skill B (MIR-CSB) - Planning and preparation of suitable responses to the brief

- Propose and plan key activities, stages, methods, processes, techniques, documentation, resources (inc. types of tools and equipment) and risk assessments.

Core skill C (MIR-CSC) - Carry out or develop these response/s using key skills and processes

- Propose maintenance, installation and repair processes for achieving specific objectives and quality outcomes, using relevant techniques, and technology, within limits of own authority.

Core Skill D (MIR-CSD) - Evaluating and quality assuring processes and outcomes

- Investigate components and systems, to gather and evaluate relevant evidence and data, and to confirm the suitability of processes, actions and outcomes (including quality control and quality assurance activities).

Core Skill E (MIR-CSE) - Communication and presentation of outcomes and evidence

- Record, report, communicate and present plans, proposals, processes, issues, risks and outcomes to both technical and non-technical audiences, across a range of suitable formats and media (eg diagrams; physical and digital records, presentations).

For the T Level Technical Qualification in Maintenance, Installation and Repair for Engineering and Manufacturing, in achieving the assessment objectives and meeting the brief, learners must demonstrate the following core skills (which are relevant across design, manufacture, and maintenance and repair practices):

Core Skill A (MIR-CSA) - Analysing and interpreting an employer -set brief

Evaluate and confirm the brief with reference to context, objectives and constraints (eg requirements, resources, precedents, technical issues, costs, health and safety, regulations, possibilities)

- Obtain brief requirements, specifications, and objectives.
- Conduct thorough checks on the information obtained to ensure thorough understanding of brief requirements.
- Confirm requirements for the brief and agree required outcomes
- Evaluate the brief considering and highlighting any potential constraints.
- Consider costing and time issues.
- Identify resources that are required including method statements, safe systems of work, permits, instructions and diagrams.
- Interpret the information accurately ensuring full understanding.
- Check documents for errors and follow procedures where discrepancies are identified.
- Consider all Health and Safety requirements and identify regulations and legislations to be followed as part of the task.
- Seek guidance from resources including HSE when interpreting brief requirements and specifications
- Conduct discussions and gain insight from others where applicable to ensure full understanding and interpretation of the task.

Core skill B (MIR-CSB) - Planning and preparation of suitable responses to the brief

Propose and plan key activities, stages, methods, processes, techniques, documentation, resources (inc. types of tools and equipment) and risk assessments.

- Identify key stages of the brief to include designing, installation and testing activities.
- Create a work plan in response to the brief as part of the planning process.
- Prioritise key factors of the task
- Identify potential issues that may arise
- Produce a risk assessment ensuring consideration of working area, activities, tools and equipment.
- Decide strategies and methods to be applied to meet brief specifications and requirements.
- Use techniques to ensure thorough planning and preparing for the tasks including contingency plans.
- Analyse key factors including working area, tools and equipment and identify potential limitations and constraints.
- Consider and identify tools and equipment which would be required, including regulatory compliance.
- Clear and concise steps planned to ensure effectiveness and efficiency of the whole process.
- Clear objectives and goals
- Propose work plan to customer and confirm acceptance of work plan.

Core skill C (MIR-CSC) - Carry out or develop these response/s using key skills and processes

Propose maintenance, installation and repair processes for achieving specific objectives and quality outcomes, using relevant techniques, and technology, within limits of own authority.

- Develop and use diagrams and aids supplied at the beginning of the task to aid with installation of the processes.
- Develop and follow clear guidance and steps produced as part of the planning process to aid with the installation.
- Develop maintenance requirements and guidance for the proposed system considering usage and purpose of the system.
- Develop guidance on the component maintenance considering manufacturer's specifications, instructions and other technical information.
- Consider regularity of proposed and required maintenance.
- Identify potential faults which may occur as part of maintenance and installation activities, creating a fault guide to aid with repair processes.
- Use manufacturer's fault guidance to aid with development of repair guides and processes.
- Follow and complete key stages of the work plan to ensure objectives and outcomes are met.
- Where practical activities within workshop environment commence, follow guidance, procedures and protocols correctly.
- Follow legal and regulatory requirements throughout the installation process, developing/conducting maintenance and developing/conducting repairs.
- Seek guidance on installation requirements and standards including HSE website.

Core Skill D (MIR-CSD) - Evaluating and quality assuring processes and outcomes

Investigate components and systems, to gather and evaluate relevant evidence and data, and to confirm the suitability of processes, actions and outcomes (including quality control and quality assurance activities).

- Regular checks and reviews throughout project to check progress, meeting of targets and success.
- Quality checks and investigations at regular points to ensure maximum efficiency and success of project.
- Review suitability of individual components for the project
- Collate evidence and data at regular points from each task/activity analysing and reviewing the process.
- Analyse and review actions taken assessing the quality and efficiency
- Actively identify areas for improvements and enhancements and make changes to the process where required.
- Use methods and techniques including verification and validation to quality assure processes and steps.
- Use collaborative approach to discuss progress and quality of completed tasks and monitor progress.
- Quality and assurance strategies including reviews, self-assessment and audits.

Core Skill E (MIR-CSE) - Communication and presentation of outcomes and evidence

Record, report, communicate and present plans, proposals, processes, issues, risks and outcomes to both technical and non-technical audiences, across a range of suitable formats and media (eg diagrams; physical and digital records, presentations).

- Present work plans to customer.
- Explain how the project outcomes and specifications will be met.
- Communicate and present clear objectives and goals set in place to achieve project aims.
- Write written reports including process diagrams and flow charts.
- Use technology and ICT to present project plans and proposals in a clear manner to the customer and stakeholders.
- Deliver a presentation to both technical and non-technical audiences.
- Report to customer and other audiences at regular intervals of the project to maintain clear communication and progress reports.
- Communicate data, evaluations and evidence of brief success and progress to audiences.
- Report potential implications such as budgeting constraints and time management issues.
- Communicate any changes and improvements that may have been identified.
- Communicate responsibilities and roles of individuals involved with the project.

Maths, English and digital skills

Maths, English and digital skills have been mapped across the core content and each of the Occupational Specialisms. The lists below identify the core competencies which can be found in the skills section of each performance criteria.

General English Competencies

The General English Competencies outline a framework of six General English Competences, with no prioritisation or interpretation of order intended:

- EC1. Convey technical information to different audiences
- EC2. Present information and ideas
- EC3. Create texts for different purposes and audiences
- EC4. Summarise information/ideas
- EC5. Synthesise information
- EC6. Take part in/lead discussions

General Mathematical Competencies

The General Mathematical Competencies outline a framework of ten General Mathematical Competences, with no prioritisation or interpretation of order intended:

- MC1. Measuring with precision
- MC2. Estimating, calculating and error spotting
- MC3. Working with proportion
- MC4. Using rules and formulae
- MC5. Processing data
- MC6. Understanding data and risk
- MC7. Interpreting and representing with mathematical diagrams
- MC8. Communicating using mathematics
- MC9. Costing a project
- MC10. Optimising work processes

General Digital Competencies

The following outlines a framework of six General Digital Competences, with no prioritisation or interpretation of order intended:

- DC1. Use digital technology and media effectively
- DC2. Design, create and edit documents and digital media
- DC3. Communicate and collaborate
- DC4. Process and analyse numerical data
- DC5. Be safe and responsible online
- DC6. Controlling digital functions

5 Scheme of assessment

Assessment methods

Learners must complete:

Two externally set exams covering knowledge from the engineering common core (component 300).

The exams provide sufficient sampling of the content and consist of a mixture of short answer questions (SAQs), some of which will be structured, and extended response questions (ERQs). The balance of questions in assessing across assessment objectives (AOs) 1, 2 and 3 will allow for the appropriate differentiation of learners to support the reliable setting of boundaries.

One Employer-set project covering knowledge and core skills from the engineering common core (component 300).

The employer-set project will consist of a well-defined, real industry-style brief. The brief will be complex and non-routine, and will require the use of relevant maths, English and digital skills. The brief will provide a valid context for the Level 3 learner to demonstrate their knowledge and understanding of the core content and their core skills to solve occupationally relevant situations and/or problems.

And

One Occupational Specialism from (311 – 315)

These assessments will feature a considerable practical element and are composed of a series of holistic practical tasks relating to the specialism at hand. The assessments should be scheduled according to the occupational specialism window identified annually in the key dates schedule published by City & Guilds. By nature of the considerable practical elements, the tasks will generate significant ephemeral evidence and be heavily reliant on Internal Assessor observation notes and records for validation.

Grading and marking

The engineering common core (component 300) is graded overall A*–E plus ungraded (U).

The Occupational Specialisms (components 311 – 315) are graded overall Distinction, Merit, Pass and Ungraded. Each Occupational Specialism achieved will receive a grade.

Technical qualification scheme of assessment overview

Core Component – Learners must complete **all** assessment components						
Assessment component	**Method**	**Duration**	**Marks**	**Weighting**	**Marking**	**Grading**
Exam paper 1	Externally set exam	2.5 hours	100	35%	Externally marked	This component will be awarded on the grade scale A* - E
Exam paper 2	Externally set exam	2.5 hours	100	35%	Externally marked	
Employer-set project	Externally set project	12.5 hours	90	30%	Externally marked	
Occupational Specialism Component - Learners must complete **one** assessment component						
Assessment component	**Method**	**Duration**	**Marks**	**Weighting**	**Marking**	**Grading**
Maintenance engineering technologies: Mechanical	Externally set assignment	22 hours	90	100%	Externally moderated	All Occupational Specialism components will be awarded on the grade scale P, M, D
Maintenance engineering technologies: Mechatronic	Externally set assignment	22 hours	90	100%	Externally moderated	
Maintenance engineering technologies: Electrical and Electronic	Externally set assignment	22 hours	90	100%	Externally moderated	
Maintenance engineering technologies: Control and Instrumentation	Externally set assignment	22 hours	90	100%	Externally moderated	
Light and Electric Vehicles	Externally set assignment	22 hours	90	100%	Externally moderated	

Core component scheme of assessment

The assessments for this component consist of two core exams and an Employer-set project, which are set against a set of assessment objectives (AOs) used to promote consistency among qualifications of a similar purpose. They are designed to allow judgement of the learner to be made across a number of different categories of performance.

Each assessment for this component has been allocated a set number of marks against these AOs based on weightings recommended by stakeholders of the qualification. This mark allocation remains the same for all versions of the assessments, ensuring consistency across assessment versions and over time.

AO weightings for the assessment components related to the core components are detailed below.

Core exam

Assessment objective	Description
AO1 Demonstrate knowledge and understanding	All AOs require the ability to recall knowledge. AO1 refers to instances where the learner is required to demonstrate basic recall. In the test, this helps to give confidence in sufficiency of coverage of the content, and recognises that not all knowledge requires further understanding e.g. terminology, number facts etc. AO1 also covers the ability to explain principles and concepts beyond recall of definitions in order to be able to transfer these principles and concepts between contexts. Learners have built connections between related pieces of knowledge. AO1 therefore also covers the ability of the learners to show understanding by summarising or explaining concepts in their own words, exemplifying, or comparing and making inferences in general terms that show e.g. cause and effect.
AO2 Apply knowledge and understanding to different situations and context	Using and applying knowledge and understanding, of processes, procedures, generalisations, principles and theories to specified, concrete situations. AO2 is about being able to take the understanding of generalities and apply them to specific novel situations. It is more granular than the more extended synthesis/creation that may respond to an analysis of a more holistic complex situation/brief.
AO3 Analyse and evaluate information and issues	Learners will be provided with information e.g. in the form of a detailed / complex scenario, problem or data set. Learners analyse the interrelated issues arising, and where appropriate evaluate the approaches or decisions they may take (for example, the strengths and weaknesses or advantages and disadvantages) to achieve a good solution or outcome. Marks will be given for the quality of analysis and evaluation and the range of factors considered.

Assessment objective	Weightings	Description
AO1a Demonstrate knowledge	10%	The ability to demonstrate basic recall of relevant knowledge in response to straightforward questioning e.g. material properties.
AO1b Demonstrate understanding	22%	The ability to explain principles and concepts beyond recall of definitions, but in a general way – i.e. out of a particular context in response to straight forward questioning e.g. simple concepts and terms of description in engineering contexts.
AO2 Apply knowledge and understanding to different situations and context	46%	Using and applying knowledge and understanding taking the understanding of generalities and applying them to specific situations. Questions are likely to ask for application in relation to a straightforward situation – e.g. assessing the application of a single concept and the application of essential mathematical concepts.
AO3 Analyse and evaluate information and issues	22%	The ability to analyse the interrelated issues arising from a complex scenario and to evaluate these to propose a best solution or predict impacts etc e.g. – evaluating materials properties and requirements for engineered products.

Component	Assessment method	Description and conditions
Core exam	Externally marked tests	These tests are **externally set and externally marked** and will be sat through question papers provided by City & Guilds. These tests are designed to assess learners' depth and breadth of understanding across the core component in the qualification at the end of the period of learning and will be sat under invigilated examination conditions. See JCQ requirements for details: **http://www.jcq.org.uk/exams-office/ice---instructions-for-conducting-examinations** Learners who fail either one or both exams in the core component will need to retake both exams and must do so in the same assessment window. These exams will be made up of different question types that include short answer questions, structured questions, and extended response questions. The level of difficulty will increase through the paper with lower demand questions at the beginning of the question paper to higher demand questions at the end of the question paper.

Component	Assessment method	Assessment overview
Paper 1	Externally marked test	Content overview: • Essential mathematics for engineering and manufacturing • Essential science for engineering and manufacturing • Materials and their properties • Mechanical principles • Electrical and electronic principles • Mechatronics
Paper 2	Externally marked test	Content overview: • Working within the engineering and manufacturing sectors • Engineering and manufacturing past, present, and future • Engineering representations • Engineering and manufacturing control systems • Quality management • Health and safety principles and coverage • Business, commercial and financial awareness • Professional responsibilities, attitudes, and behaviours • Stock and asset management • Continuous improvement • Project and programme management

Employer-set project

Component	Assessment method	Assessment weighting
AO1 Plan approach to meet brief	Evidence of a planned approach to work, considered sequence of activity, evidence of prioritisation, review and iterative working. Clearly structured response to brief, cohesive response with ordered sections, logical approach to referencing, research and use of sources, response completed meeting required parameters, sources used effectively and integrated into response, effective use of time allocation available for presentations.	13.3%
AO2 Apply knowledge and skills to contexts	Linking knowledge principles and ideas and applying them in context of the brief when considering compiling response use of materials, concepts etc. Applying core skills e.g. communication, problem solving appropriately throughout tasks within project.	50%
AO3 Select techniques and resources to meet brief	Selection of techniques and resources in order to support a response to the brief; consideration of the techniques and resources that are most effective and appropriate to use, and accurate and informed use of these.	13.3%
AO4 Use maths, English and digital skills	Use of correct terminology, abbreviations, units of measurement in context, consideration of audience of brief response (technical versus non-technical wording), use of calculations/diagrams etc appropriately, consideration of the use of ICT and digital methods both in brief response and in presentation.	10%
AO5 Realise project outcome and evaluate	Considered analysis and evaluation of project outcome, response conclusion or evaluation, identification of solutions in response to brief problem with evidence of evaluation of other options and reasons for rejection of other options where not appropriate.	13.3%

Component	Assessment method	Description and conditions
Employer-set project	Externally marked project	This project is **externally set and externally marked** by City & Guilds and is designed to require the learner to identify and use effectively in an integrated way an appropriate selection of skills, techniques, concepts, theories and knowledge from across the whole of the engineering core content. Projects will be released to centre staff in advance of any of the assessment windows for each task. City & Guilds will provide centres with assessment windows for centres to timetable assessment sessions within, in accordance with the assessment times prescribed in the Employer-set project centre guidance. Centres will be required to maintain the security of all live assessment materials until assessment windows are open. Projects will therefore be password-protected and released to centres through a secure method. Guidance on equipment, resources and duration will be released as appropriate to ensure centres can plan for delivery of the project in advance. Learners who fail the Employer-set project on first submission can retake in any assessment window.

Component	Assessment Method	Assessment overview
Employer-set project	Externally marked project	**Content overview:** The employer-set project samples knowledge drawn from across the core content in relation to the specific project version context. **Assessment overview:** The employer-set project is an assessment made up of several tasks that will take place within controlled conditions, assessing the knowledge and skills learned as part of the core element of the T Level. Each project will be developed together with employers in the industry to reflect realistic types of developments, activities and challenges. The project is made up of a number of tasks which all relate to the same employer-set project brief and tender specification. • Research • Report • Plan • Present The project draws on the content from the core knowledge that sits across all specialisms in Maintenance, Installation and Repair for Engineering and Manufacturing (specific knowledge and skills for each specialism will be assessed in the practical assignments). The project is linked to the core skills: • Analysing and interpreting • Planning and preparation • Developing a proposal • Evaluation • Communication

Scheduling of the Employer-set project assessments

The employer-set project assessment window will occur from March to May annually. Specific dates will be released annually through the key date schedule for the following academic year.

Task	Scheduling	Task duration
1 Research	City & Guilds sets the assessment window for the centre to timetable	3 hours
2 Design	City & Guilds sets the assessment window for the centre to timetable	4 hours
3 Plan	City & Guilds sets the assessment window for the centre to timetable	3 hours
4 Present	City & Guilds sets the assessment window for the centre to timetable	2.5 hours

A supporting document and guidance will be shared in advance of the assessment to support timetabling and planning for centres, for example outlining any required resources or conditions. This will be released to centres as part of the Key Dates Schedule.

Occupational Specialism component scheme of assessment

What is the Occupational Specialism component?

The Occupational Specialism assignment consists of a project brief presented as client requirements or a specification of work that is realistic to the Occupational Specialism rather than detailed instructions on what to do, to allow the learner to demonstrate that they have the knowledge required to implement the brief. There will be several high-level tasks in every version of the assessment, and these will take the form of planning and carrying out industry relevant practical tasks. Within each high-level task there will be several sub-tasks that learners will need to complete as directed within the assessment documents. The sub-tasks will reflect the project brief for that version of the assignment.

How is the Occupational Specialism component marked?

Occupational Specialism assessments will be set and marked against a number of assessment themes. Once learner evidence has been marked, Internal Assessors will make a holistic judgement on performance by applying the knowledge and skills that have been demonstrated to assessment themes within the marking grid.

Each learner will receive a total mark for each assessment theme. The total for each assessment theme is accumulated, giving a total mark for the assessment. Assessment themes will be common across every version of the assessment and will assess a similar range of evidence across assessment versions, ensuring comparability of demand between every version of the assessment.

Although evidence from across all tasks can be used to demonstrate performance against an assessment theme, internal assessors will be directed to specific task evidence that must be used to support judgements on performance against the assessment theme. The assessment themes will be broad enough to ensure that all the performance criteria across the specialism are assessed, supporting reliability of the assessment.

In order to ensure reliability, and consistent and accurate judgements on performance, assessment themes may consist of sub-assessment themes due to the potentially wide content coverage and to ensure that the Performance Outcome (PO) is assessed to the appropriate depth and breadth. This still allows for the appropriate base mark to be applied to the assessment theme, but also ensures that the distribution of marks within and across bands is more manageable and increases the reliability of judgements made and marks awarded. Internal assessors will give an appropriate mark in relation to the learner's performance for each individual sub-assessment theme, but this will contribute to the overall mark for that assessment theme. Internal assessors will then need to evidence the decision for the mark awarded for each assessment theme on the Candidate Record Form (CRF).

Component	Assessment method	Overview and conditions
Occupational Specialism assignment	Externally set, externally moderated	This assignment is **externally set, internally marked and externally moderated**, and is designed to require the learner to identify and use effectively in an integrated way an appropriate selection of skills, techniques, concepts, theories and knowledge from across the occupational area. Assignments will be released to centre staff towards the end of the learners' programme, usually the week before Easter each year. Centres will be required to maintain the security of all live assessment materials until assessment windows are open. Assignments will therefore be password-protected and released to centres through a secure method. Guidance on equipment, resources and duration will be released as appropriate to ensure centres can plan for delivery of practical assignments in advance. Learners who fail the Occupational Specialism following the first submission can retake in any assessment window. Please note that for externally set assignments City & Guilds provides guidance and support to centres on the marking process and associated marking grid in the assessment pack for the qualification, and guidance on the use of marking grids

Component	Assessment method	Overview and conditions
Maintenance engineering technologies: Mechanical	Externally set, externally moderated	**Content overview** Learners will be able to: • Analyse and interpret requirements for mechanical engineering maintenance, installation and repair • Plan and prepare for mechanical engineering maintenance, installation and repair • Perform maintenance, installation and repair activities on mechanical plant and equipment • Review and evaluate mechanical engineering maintenance, installation and repair activities • Communicate mechanical maintenance, installation, servicing and repair information **Assessment overview:** Learners will be assessed against the following assessment themes: • Health and safety • Planning and preparation • Systems and components • Working with faults • Reviewing and reporting

Component	Assessment method	Overview and conditions
Maintenance engineering technologies: Mechatronic	Externally set, externally moderated	**Content overview** Learners will be able to: • Analyse and interpret requirements for mechatronic maintenance, installation and repair • Plan and prepare for mechatronic maintenance, installation and repair activities • Perform maintenance, installation and repair activities on mechatronic technology, systems and equipment • Review and evaluate mechatronic maintenance, installation and repair activities • Communicate mechatronic maintenance, installation, servicing and repair information **Assessment overview:** Learners will be assessed against the following assessment themes: • Health and safety • Planning and preparation • Systems and components • Working with faults • Reviewing and reporting

Component	Assessment method	Overview and conditions
Maintenance engineering technologies: Electrical and Electronic	Externally set, externally moderated	**Content overview** Learners will be able to: • Analyse and interpret requirements for electrical and electronic maintenance, installation and repair • Plan and prepare for electrical and electronic maintenance, installation and repair activities • Perform maintenance, installation and repair activities on electrical and electronic technology, systems and equipment • Review and evaluate electrical and electronic maintenance, installation and repair activities • Communicate electrical and electronic maintenance, installation, servicing and repair information **Assessment overview:** Learners will be assessed against the following assessment themes: • Health and safety • Planning and preparation • Systems and components • Working with faults • Reviewing and reporting

Component	Assessment method	Overview and conditions
Maintenance engineering technologies: Control and Instrumentation	Externally set, externally moderated	**Content overview** Learners will be able to: • Analyse and interpret requirements for control and instrumentation maintenance, installation and repair • Plan and prepare for control and instrumentation maintenance, installation and repair activities • Perform maintenance, installation and repair activities on control and instrumentation technology, systems and equipment • Review and evaluate control and instrumentation maintenance, installation and repair activities • Communicate control and instrumentation maintenance, installation, servicing and repair information **Assessment overview:** Learners will be assessed against the following assessment themes: • Health and safety • Planning and preparation • Systems and components • Working with faults • Reviewing and reporting

Component	Assessment method	Overview and conditions
Light and Electric Vehicles	Externally set, externally moderated	**Content overview** Learners will be able to: • Analyse and interpret requirements for vehicle maintenance, servicing and repair • Plan and prepare for vehicle maintenance, servicing and repair activities • Perform maintenance, servicing and repair of vehicles • Review and evaluate vehicle maintenance, servicing and repair activities • Communicate vehicle maintenance, servicing and repair information **Assessment overview:** Learners will be assessed against the following assessment themes: • Health and safety • Planning and preparation • Systems and components • Working with faults • Reviewing and reporting

Availability of assessments

Scheduled assessment windows will be set annually for the T Level Technical Qualification in Maintenance, Installation and Repair for Engineering and Manufacturing (Level 3). Exact key dates for assessments that are externally marked (core exams and the Employer-set project) will be communicated to approved providers annually through the key date schedule.

Component	Series	Exam type	Calendar Month/s	Assessment window/set date
Core exam 1	Summer	Written exam	May/June	Set date
	Autumn	Written exam	November	Set date
Core exam 2	Summer	Written exam	May/June	Set date
	Autumn	Written exam	November	Set date
Employer-set project	Summer	Project	March – May	Assessment window
	Autumn	Project	October	Assessment window
Occupational specialism	One series annually	Project	April – May	Assessment window

6 Technical qualification grading and result reporting

Awarding the technical qualification grade

The technical qualification components are awarded as shown below:

Component	Grading
Core	A* – E
Occupational Specialism	Pass, Merit and Distinction

Core component

Calculating the grade of the core component uses the aggregation of points from across all assessment components in the core to calculate the overall grade for the core component.

Core component grade descriptors

Component	Grade	Descriptor
Core	A	To achieve an 'A' grade a candidate will: Show clear ability to demonstrate a comprehensive understanding of the full range of principles that influence engineering activities in routine contexts and allow successful implementation to non-routine contexts. Make links between relevant knowledge and understanding when responding to problems in a logical and methodical format. Legitimate and justified approaches are provided in response to complex engineering briefs and problems. Demonstrate the ability to comprehensively identify and interpret a full range of considerations when analysing complex briefs or problems, including the impacts their decisions have on design, manufacture and maintenance in engineering contexts. There is a meticulous approach in the selection of processes, tools and equipment, materials, methods and health and safety considerations when planning approaches or responses to engineering briefs or problems. Use a range of communication strategies and an ability to adapt their style and format to respond well to audience and stakeholder needs in presenting approaches to solving problems. Demonstrate a high degree of accuracy in knowledge and skills from across the core content and critically evaluate their own performance in meeting a brief or problem, identifying areas for improvement where appropriate.

Component	Grade	Descriptor
Core	E	To achieve an 'E' grade a candidate will: Demonstrate a limited understanding some of the key principles and how they influence engineering activities in routine contexts. Make general links in knowledge and understanding when responding to routine engineering problems. The response can sometimes be superficial, not evidence-based and supported by partial reasoning. Respond to engineering briefs or problems with little awareness of the impact their decisions have on design, manufacture or maintenance in engineering contexts. There is some understanding in the selection of processes, tools and equipment, materials, methods and health and safety considerations to meet the requirements of routine engineering briefs or problems. Demonstrate a small range of communication strategies that are sometimes not suitable in language and format for audiences and stakeholders with inaccuracies in technical references. Provide some evaluation of performance and how requirements have been met when addressing an engineering brief, with no reference on how to improve. Candidates need to complete all components to be awarded the Technical Qualification. Any performance determined as not meeting the standard by City & Guilds will receive an unclassified (U) result.

Occupational Specialism component

Calculation of the grade for the Occupational Specialism is based on setting grade boundaries for Pass and Distinction. The setting of grade boundaries is based on judgemental evidence, against the grade descriptors for the Occupational Specialisms, review of the Guide Standard Exemplification Materials (Grade Standard Exemplification Materials after the first award) and review of statistical evidence.

Pass and Distinction grade descriptors can be found in the centre occupational assessment materials.

To successfully achieve an Occupational Specialism the learner needs to be recognised at threshold competence (Pass).

Threshold competence refers to a level of competence that:

- signifies that a student is well placed to develop full occupational competence, with further support and development, once in employment
- is as close to full occupational competence as can be reasonably expected of a student studying the TQ in a classroom-based setting (for example, in the classroom, workshops, simulated working and (where appropriate) supervised working environments)
- signifies that a student has achieved at least a pass in relation to the relevant occupational specialism component

If a learner does not meet the minimum standards as determined by City & Guilds for either/both the core component and Occupational Specialism they will be issued with an unclassified (U) grade.

Awarding the T Level programme grade

To achieve a T Level Technical Qualification in Maintenance, Installation and Repair for Engineering and Manufacturing (Level 3) a learner must complete all elements of the T Level framework set by the Institute for Apprenticeships and Technical Education (IfATE). This includes the technical qualification, industry placement and other requirements set, such as a license to practice qualification.

In meeting the above requirements, the learner will be eligible to be awarded an overall qualification grade for the T Level Technical Qualification in Maintenance, Installation and Repair for Engineering and Manufacturing (Level 3). The overall qualification grade will be based on performance in the core component and Occupational Specialism, as set out below.

T Level Qualification Grade				
	Occupational specialism grade			
Core component grade	**Grade**	**Distinction**	**Merit**	**Pass**
	A*	Distinction*	Distinction	Distinction
	A	Distinction	Distinction	Merit
	B	Distinction	Merit	Merit
	C	Distinction	Merit	Pass
	D	Merit	Merit	Pass
	E	Merit	Pass	Pass

7 Administration

Factors affecting individual learners

If work is lost, City & Guilds should be notified immediately of the date of the loss, how it occurred, and who was responsible for the loss. Centres should use the JCQ form, JCQ/LCW, to inform City & Guilds Customer Services of the circumstances.

Learners who move from one centre to another during the course may require individual attention. Possible courses of action depend on the stage at which the move takes place. Centres should contact City & Guilds at the earliest possible stage for advice about appropriate arrangements in individual cases.

Malpractice

Please refer to the City & Guilds guidance notes *Managing cases of suspected malpractice in examinations and assessments*. This document sets out the procedures to be followed in identifying and reporting malpractice by candidates and/or centre staff and the actions which City & Guilds may subsequently take. The document includes examples of candidate and centre malpractice and explains the responsibilities of centre staff to report actual or suspected malpractice. Centres can access this document on the City & Guilds website.

Examples of candidate malpractice are detailed below (please note that this is not an exhaustive list):

- falsification of assessment evidence or results documentation
- plagiarism of any nature
- collusion with others
- copying from another candidate (including the use of ICT to aid copying), or allowing work to be copied
- deliberate destruction of another's work
- false declaration of authenticity in relation to assessments
- impersonation.

These actions constitute malpractice, for which a penalty (e.g. disqualification from the assessment) will be applied.

Where suspected malpractice is identified by a centre after the candidate has signed the declaration of authentication, the Head of Centre must submit full details of the case to City & Guilds at the earliest opportunity. Please refer to the form in the document *Managing cases of suspected malpractice in examinations and assessments*.

Accessibility

In the design of the Technical Qualification and its assessments, the following principles have been applied:

- In the development of content, tasks and assessments all learners are considered
- Well-designed materials that do not create barriers to attainment. This will include content being presented logically and uncluttered
- No particular characteristic or group of learners are disadvantaged by features of a qualification
- Language is appropriate including carrier language which is presented in its simplest for fair access to all learners
- In the design of content and assessments the impact on learners social, behavioural and emotional well-being will be considered
- Physical and sensory needs of learners in accessing content and assessments.

Access arrangements

Access arrangements are adjustments that allow candidates with disabilities, special educational needs and temporary injuries to access the assessment and demonstrate their skills and knowledge without changing the demands of the assessment. These arrangements must be made before assessment takes place.

It is the responsibility of the centre to ensure at the start of a programme of learning that candidates will be able to access the requirements of the qualification.

Please refer to the *JCQ access arrangements and reasonable adjustments and Access arrangements - when and how applications need to be made to City & Guilds* for more information. Both are available on the City & Guilds website: **http://www.cityandguilds.com/delivering-our-qualifications/centre-development/centre-document-library/policies-and-procedures/access-arrangements-reasonable-adjustments**

In the design of the technical qualification and its assessments the following principles have been applied:

- In the development of content, tasks and assessments, **all** learners are considered.
- Materials are well designed and do not create barriers to attainment. This includes content being presented logically and in an uncluttered way.
- No particular characteristics or groups of learners are disadvantaged by features of the qualification.
- Language is appropriate and presented in its simplest form to provide fair access to all learners.
- In the design of content and assessments, the impact on learners' social, behavioural and emotional wellbeing is considered.
- Physical and sensory needs of learners in accessing content and assessments are considered.

Special consideration

We can give special consideration to candidates who have had a temporary illness, injury or indisposition at the time of the examination. Where we do this, it is given after the examination.

Applications for either access arrangements or special consideration should be submitted to City & Guilds by the Examinations Officer at the centre. For more information please consult the current version of the JCQ document, *A guide to the special consideration process*. This document is available on the City & Guilds website: **http://www.cityandguilds.com/delivering-our-qualifications/centre-development/centre-document-library/policies-and-procedures/access-arrangements-reasonable-adjustments**

Informing candidate of pre-moderated marks

Centres are required to inform candidates of their marks **before** external moderation. It is important that candidates are informed of their pre-moderated marks are provisional and allow sufficient time for them to appeal if felt necessary while still allowing their agreed centre marked work to be available for external moderation on time.

Centres must also provide candidates with a copy of their marked work and the centre's internal appeals procedures on request.

Internal appeals procedure

For internally marked assessments, all centres must have an internal appeals procedure for candidates, which gives them the opportunity to appeal the centre mark for their work, before moderation takes place. The procedure must ensure:

- the person completing the appeal is competent and did not mark the work originally
- that any marking errors are identified and corrected
- the candidate is informed of the outcome, reason and any change in mark.

The City & Guilds appeals process also covers access arrangements, special consideration, and malpractice. Applications are not accepted directly from candidates, but the centre can apply on a candidate's behalf. Where relevant, centres must tell candidates how to request this. The centre can refuse to make the application to City & Guilds, but the candidate must be given the opportunity to appeal this decision. This information must be included in the centre's internal appeals procedure.

Centres must provide candidates and City & Guilds with a copy of their internal appeals procedure, on request.

Results reporting

The Institute for Apprenticeships and Technical Education (IfATE) will certificate Learners who have successfully completed all elements of the T Level Technical Qualification in Maintenance, Installation and Repair for Engineering and Manufacturing (Level 3).

T Level results will be released on the Level 3 results day in August.

Post-results services

The services available include a review of marking and review of moderation. Requests must be submitted within the specified period after the publication of results for individual assessments.

For further details of enquiries about results services, please visit the City & Guilds website at **www.cityandguilds.com**

8 Components

Content of components

The components in this qualification are written in a standard format and comprise the following:

- City & Guilds reference number
- Title
- Level
- Guided learning hours (provisional)
- Assessment method
- Introduction section
- Underpinning knowledge outcome – including range and 'what learners need to learn' sections
- Skills outcomes – including range and 'what learners need to learn' sections
- Links to maths, English and digital skills
- Guidance for delivery*
- Suggested learning resources*

*To be developed further

300 Engineering common core content

Level:	3
GLH:	680
Assessment method:	Externally set exam Employer-set project

What is this component about?

An introduction to Engineering and Manufacturing, designed to help learners choose a specific pathway and specialism once the common core is delivered.

It covers the theoretical knowledge of the Engineering and Manufacturing industry and various disciplines across all sectors that are indicative to the industry.

Learners gain an understanding of what theoretical principles and practices integral to the industry and sector are required to work in it.

Learners will develop their knowledge and understanding of, and skills in:

- Knowledge of working within the engineering and manufacturing sectors and the professional responsibilities, attitudes, and behaviours required to do so.
- Knowledge of the essential mathematics and science for engineering and manufacturing.
- Knowledge of mechanical, electrical and mechatronic principles.
- Knowledge of health and safety principles.
- An understanding of the business management required within the sector to provide a product or service with success.
- Skills in project management and delivery of a project.

Learners may be introduced to this component by asking themselves questions such as:

- What are the different sectors in engineering and manufacturing?
- What does the future look like for this sector, where could it take me?
- What mathematics and science are involved in engineering and manufacturing?
- How do I read engineering diagrammatic representations?
- How do I manage and present a project?

Underpinning knowledge outcomes

On completion of the Common Core component, learners will understand

1 Working within the engineering and manufacturing sectors
2 Engineering and manufacturing past, present, and future
3 Engineering representations
4 Essential mathematics for engineering and manufacturing
5 Essential science for engineering and manufacturing
6 Materials and their properties
7 Mechanical principles
8 Electrical and electronic principles
9 Mechatronics
10 Engineering and manufacturing control systems
11 Quality management
12 Health and safety principles and coverage
13 Business, commercial and financial awareness
14 Professional responsibilities, attitudes, and behaviours
15 Stock and asset management
16 Continuous improvement
17 Project and programme management

Completion of the Engineering and Manufacturing Common Core will give learners the opportunity to develop their Maths, English and Digital Skills. Details are presented in the skills section of each criterion.

Content

1 Working within the engineering and manufacturing sectors

1.1 Key **principles** and methodologies in engineering and manufacturing design.

Range:
Principles
Types of manufacturing process (wasting, forming, shaping, joining, finishing, casting, additive).
Fitness for purpose (influences on design and manufacture, functional requirements, environmental requirements).
User requirements (design brief, specification, needs to be met).
Approaches to design (linear design, iterative design, inclusive design, user centred design, anthropometric data (ergonomic design), design for manufacture, design for assembly, sustainable design, 6Rs (reduce, refuse, rethink, repair, reuse, recycle)).
Research and testing methodologies.
Methods of communicating design requirements to technical and non-technical audiences.

What do learners need to learn?	Skills
How different types of manufacturing processes influence the design of engineered products. How different requirements affect the user and designs related to the manufacture of products. The steps of the linear and iterative design processes and the contribution that testing makes to achieve a suitable and effective design. How to interpret anthropometric data.	MIR-CSA, MIR-CSE.

1.2 The role of **maintenance, repair and installation** in engineering.

Range:
Maintenance, repair and installation
Types of maintenance activity (planned, reactive, preventative, condition-based monitoring).
Roles and functions (machine operator, maintenance engineer, maintenance manager).
Operations (monitoring, repair, shutdown, servicing).
Tools and equipment (mechanical (hand tools, portable power tools), electrical/electronic (hand tools, soldering irons).
Measurement devices, instrumentation and gauges).
Installation requirements (provision of services, commissioning).
developments in maintenance (influence of new technologies, environmental influences).

What do learners need to learn?	Skills
The role and purpose of maintenance, repair and installation. The advantages and disadvantages of different approaches to maintenance. The responsibilities of the different roles involved in maintenance. Approaches to monitoring and the reasons for carrying out monitoring. The reasons for, and implications of shutdown and servicing. An overview of the types of tools and equipment used. The reasons for commissioning activities.	MIR-CSB, MIR-CSC.

How effective maintenance reduces impact on the environment and the safe and environmentally friendly disposal of waste.

1.3 Approaches to **manufacturing**, processing and **control**.

Range:

Manufacturing – Scale of manufacture (one off, batch, mass, continuous), infrastructure (functional, product and matrix arrangements, cellular manufacture, production lines), level of automation (manual, computer aided manufacture (CAM), fully automated, robotic).
Control – Infrastructure (monitoring of performance, quality assurance, quality control).

What do learners need to learn?

How the scale of manufacture affects the level of automation.

Examples of products made at different scales of manufacture.

Different types of manufacturing infrastructure, their purpose and relative advantages and limitations.

The purpose and application of CAM systems and software.

The advantages and limitations of different levels of automation.

2 Engineering and manufacturing past, present, and future

2.1 **Sectors** of the engineering industry.

Range:
Sectors – Aerospace, rail, agriculture, automotive, chemical, structural, materials, logistics, defence, electrical and electronic, control, medical, manufacturing, marine, petrochemical, power generation (renewables, non-renewables, nuclear), telecommunications, water and waste management.

What do learners need to learn?
An overview of the main activities, the products and/or services provided by the stated sectors.

2.2 Significant **technological advances** in engineering from a historical perspective.

Range:
Technological advances – Development of materials, electrical power and electrical sources of artificial lighting, the internal combustion engine, electric motors, replaceable parts and mass production, television (valves, cathode ray, LED, OLED, curved screens, 4K/5K), radio, automated machines, computers and the internet.

What do learners need to learn?
How technology advances and their operations have evolved and contributed to engineering, and social and economic development, to include transportation, healthcare, housing, employment and sustainability.

2.3 **Areas of innovation and emerging trends** in engineering.

Range:
Areas of innovation and emerging trends – Artificial intelligence (AI), virtual reality (VR), augmented reality (AR), digitalisation, robotics, drones, autonomous systems, distributed energy, hybrid technologies, cyber-physical systems, the internet of things (IOT), cloud computing, sustainability (product life cycle, circular economy, exploring alternatives, renewables, waste and disposal).

What do learners need to learn?
How innovation and emerging trends are evolving and could influence manufacturing, environmental considerations, social and economic development.

3 Engineering representations

3.1 **Drawings** and **information** conveyed by drawings.

Range:

Drawings – Computer aided design models, freehand sketching, isometric, orthographic projection (first angle, third angle, section, assembly, general arrangement), exploded views, block diagrams, flowcharts, circuit diagrams, schematics (wiring diagrams, pneumatics, hydraulics).

Information – Scale, title block, view (elevation, plan, end, section, auxiliary), types of line (outlines, hidden detail, centre line, projection, dimension, leader, construction), surface finish, manufacturing detail, standard features (screw threads, nuts, bolts, pins, repeated items, counterbore, countersink, centre mark), abbreviations (across flats AF, centre line CL, diameter DIA, drawing DWG, material MTL, square SQ, chamfer CHAM, countersunk CSK, hexagon head HEX, radius R, thread THD, undercut UCUT, pitch circle diameter PCD), graphical symbols used on drawings (projection symbols, diameter, surface finish).

What do learners need to learn?	**Skills**
The characteristics of, purposes of, and audience for different drawing types. The purpose and application of CAD systems and software. How to interpret and present information, symbols, conventions and annotations on engineering drawings in accordance with the conventions of BSEN8888 and BS3939.	MC3, DC4.

3.2 **Dimensions and tolerancing** on engineering drawings.

Range:

Dimensions and tolerancing – Dimensions (linear, diameter, radius, angular), tolerances, limits and fits, geometric dimensioning and tolerancing (GDT) symbols (datum, parallelism, perpendicularity, concentricity, straightness).

What do learners need to learn?	**Skills**
How to interpret dimensions and related drawing symbols. How to calculate tolerances, limits and fits.	MC4, MC8.

4 Essential mathematics for engineering and manufacturing

4.1 Applied **mathematical theory** in engineering applications.

Range:

Mathematical theory

Standard arithmetic – Ordering, integers, decimals, standard forms, fractions, percentages, ratios.

Algebra – Factorising and manipulating equations, solving quadratics, using indices and logarithms, determining numbers in a sequence, standard matrices and determinants.

Geometry – Calculation of areas and volumes.

Calculus – Graphs and charts relevant to engineering and manufacturing contexts, differentiation and integration.

Trigonometry – Pythagoras' theorem, triangle calculations, circular measure, trigonometric functions and graphs of trigonometric functions, sine and cosine rules, common trigonometric identities and values, applications of vectors and coordinates, scalars.

Statistical analysis – Analysis of data and calculation of probabilities in engineering contexts, estimation.

What do learners need to learn?	Skills
Perform arithmetic operations on integers, decimal numbers and numbers in standard form using rules of arithmetical preference: brackets indices division multiplication adding and subtraction (BIDMAS).	MC2, MC3, MC4, MC5, MC6, MC7, MC8.
Work to a specified number of decimal places or significant figures.	
Carry out calculations using fractions, percentages, ratios and scale.	
Simplify, factorise and manipulate equations to change the subject.	
Solve simultaneous and quadratic equations.	
Apply rules of indices.	
Apply laws of logarithms (base 10 and natural) - problem solving including problems involving growth and decay.	
Determine numbers in a sequence using arithmetic and geometric progression, power series.	
Addition, subtraction and multiplication of matrices in engineering contexts.	
Calculate the area of 2D shapes (square, rectangle, triangle, circle) and the volume of 3D shapes (cube, cuboid, cylinder, cone).	
Interpret and express changes in an engineering system from a graph (straight line, trigonometrical and exponential relationships).	
Determine the equation of a straight line from a graph (y = mx + c).	
Determine standard differentials and integrals (basic arithmetic operations, powers/indices, trigonometric functions).	
Calculate maximum and minimum values in engineering contexts using differentiation.	
Use of Pythagoras' theorem and triangle measurement.	
Circular measure including conversion between radians and degrees.	
Application of trigonometric functions (sin, cos, tan), their common values, rules and graphical representation.	
Determining dimensions of a triangle using sine and cosine rules.	
Common trigonometric identities (sec, csc, cot).	
Use of vectors including addition, dot and cross product.	
Calculation of range, cumulative frequency, averages (mean, median and mode) and standard deviation for statistical data in an engineering context.	
Determination of probabilities in practical engineering situations.	

4.2 **Number systems** used in engineering and manufacturing.

Range:
Numbering systems – Decimal, binary, hexadecimal.

What do learners need to learn?	Skills
How to identify and convert between numbering systems. The applications of numbering used in engineering and manufacturing.	MC5, MC6.

5 Essential science for engineering and manufacturing

5.1 **Units of measurement** used in engineering.

Range:

Units of measurement –

SI units: Metre (m), kilogram (kg), second (s), newton (N), metre cubed (m^3), metre per second ($m\ s^{-1}$), metre per second squared ($m\ s^{-2}$), newton metre (N m), Pascal (Pa or $N\ m^{-2}$), mass per unit volume ($kg\ m^{-3}$), unit multiples and submultiples (tera, giga, mega, kilo, milli, micro, nano, pico).

Imperial units: Foot (ft), inches (in), yard (yd), ounce (oz), gallon (gal).

What do learners need to learn?	Skills
The difference between base and derived units. The units applicable to different properties. How to convert between SI units and comparable imperial units. How to convert between different multiples and submultiples.	MC4.

5.2 **Vector and coordinate** measuring systems.

Range:

Vector and coordinate – Vectors and scalar quantities (distance, displacement, speed, velocity, acceleration), polar coordinates, Cartesian coordinates.

What do learners need to learn?	Skills
The definitions of, and differences between, scalar and vector coordinates. How to convert between Cartesian and polar coordinates where angles are in degrees.	MC4, MC7, MC8.

5.3 Scientific methods and approaches to scientific inquiry and research.

What do learners need to learn?
The concept of the scientific method (observation, questioning, making a hypothesis, prediction / simulation, testing, conclusion, iteration). How to analyse, evaluate, synthesise and apply information, data, research findings, deliberation, and the processes, results and outcomes of testing, modelling and experimenting (accuracy, reliability, precision and replication).

5.4 Measurement **equipment**, techniques and **principles**.

Range:

Equipment – Rule, callipers (digital, Vernier), micrometers (inside, outside, depth), gauges (angle, slip, go/no-go), dial test indicator (DTI), coordinate measuring machines (CMM).

Principles – Precision, accuracy, uncertainty, resolution, calibration, tolerance.

What do learners need to learn?	Skills
What can be measured by each item of equipment. The techniques used to carry out measurements using the stated equipment. The accuracy and relative limitations and benefits of the listed devices. How the principles and techniques are used in measuring and problem solving.	MC1, MC5, MC6, MC8, DC1, DC4.

5.5 **Chemical composition** and **behaviours**.

Range:

Chemical composition – Atomic structure (atom, nucleus, electron, proton, neutron, valence, valence shell, ion, element, molecule), chemical structure (solutions, suspensions, solubility, compound and mixture), periodic table.

Behaviours – Chemicals in electricity (cells (simple, primary and secondary), cell capacity, power capacity, internal resistance), electrolysis (anode, cathode, electrolyte, anion, cation, dissociation, plating, galvanic protection), reactions of metals and alloys with weak and strong acids and alkalis.

What do learners need to learn?	Skills
The definitions of the term atom, element, molecule, compound and mixture. The applications, characteristics, management and control of chemical interactions and reactions used in engineering (chemical etching, surface finishing, bonding, applications for oils and lubricants, high-risk operations).	EC4, MC3, MC5, MC6, DC1, DC4.

5.6 **Forces and motion** in engineering.

Range:

Forces and motion – Types of motion (rotary, linear, reciprocating, oscillating), pressure, vector representation of forces, balanced and unbalanced forces, moments about a force, torque, conditions for equilibrium, coplanar forces.

What do learners need to learn?	Skills
The application of theory and calculations to solve practical engineering problems involving forces and motion.	MC4, MC5, MC6, MC7, MC8, DC1, DC4.

5.7 **Fluid dynamics** in engineering.

Range:

Fluid dynamics – Hydrostatic pressure ($p = r\ g\ h$), hydrostatic thrust on an immersed plane surface ($F = \rho\ g\ A\ x$), centre of pressure, viscosity, Bernoulli's principle, immersion of a body, flow characteristics around a two-dimensional shape (laminar, turbulent, vortices, separation points), principles of aerodynamics (drag, thrust, lift).

What do learners need to learn?	Skills
The application of theory and calculations to solve practical engineering problems involving fluids. The key differences between liquid flow and aerodynamics.	MC4, MC5, MC6, MC7, MC8, DC1, DC4.

5.8 **Thermodynamics** in engineering.

Range:

Thermodynamics – Heat transfer mechanisms (conduction, convection, radiation), systems (open, closed, temperature, pressure, volume), sensible heat, latent heat of fusion, latent heat of vaporisation, expansivity, coefficient of heat transfer, equations (absolute temperature, absolute pressure, volume, mass, density, Boyle's law (pV = constant), Charles' law (V/T = constant), general gas equation (pV/T = constant), characteristic gas equation (pV = mRT)).

What do learners need to learn?	Skills
The application of theory and calculations to solve practical engineering problems involving thermodynamics.	MC4, MC5, MC6, MC7, MC8, DC1, DC4.

6 Materials and their properties

6.1 **Physical** and **mechanical** properties of materials.

Range:
Physical properties – Density, melting point, thermal and electrical conductivity (resistivity), thermal expansivity, corrosion resistance, specific heat capacity, hardenability, weldability, permeability, permittivity, ability to be recycled.
Mechanical properties – Strength (tensile, compressive, shear, torsion), hardness, toughness, brittleness, ductility, elasticity, plasticity, malleability.

What do learners need to learn?
The difference between physical and mechanical properties.
The definitions of the stated properties.
Calculation of density.

6.2 **Types** of material and their **structures**.

Range:
Types –

- Ferrous metals (cast iron, low carbon steel, medium carbon steel, high carbon steel, stainless steel).
- Non-ferrous metals (aluminium and alloys, copper, brass and bronze, nickel, zinc).
- Thermoplastic polymers (ABS, HIPS, PLA, sheet and polystyrene foam, polycarbonate, polypropylene, PMMA/acrylic).
- Thermosetting polymers (urea formaldehyde, melamine formaldehyde, phenol formaldehyde, epoxy resin, polyester resin).
- Elastomers (rubber, neoprene).
- Composites (GRP, CRP, MDF).
- Engineering ceramics (silicon carbide, glass).
- Timber (soft wood, hard wood, engineered wood).
- Smart materials: shape memory alloys, quantum tunnelling composite, thermochromic materials, photochromic materials, piezoelectric crystals.

Structures – Atomic structure (atoms, compound), bonding mechanisms (metallic, covalent, ionic, van der Waal's forces), microstructure (grains), lattice structure in metals (dislocation movement and pinning), crosslinking of polymers, ceramic structures (crystalline and non-crystalline (amorphous) materials), composite (particulate, fibrous, laminated).

What do learners need to learn?
The common forms of supply, relative properties, applications and methods of disposal of the listed materials.
The differences between: pure metals and alloys, ferrous and non-ferrous metals, thermoplastic and thermosetting polymers, composites and alloys.
The definition of a smart material, the characteristics and typical applications of smart materials.
The relationship between the structure of a material and its properties.
The difference between crystalline and non-crystalline materials.

6.3 The effects of processing **techniques** on materials.

Range:
Techniques –

Metals – forming (rolling, forging, moulding/press forming), welding, brazing, casting, sintering, coating, hot working, cold working.

Thermoplastic polymers – temperature, mould/injection pressure.

Thermosetting polymers – curing.

Ceramics – sintering pressing force and firing temperature.

Composites – influence of alignment of reinforcement on anisotropy of properties, influence of matrix/reinforcement ratio on tensile strength.

What do learners need to learn?

How the stated processes affect the structure, physical and mechanical properties of materials.

6.4 **Heat treatments** and **surface treatments**.

Range:
Heat treatments – Case hardening, quench hardening, tempering, normalising, annealing and precipitation hardening.
Surface treatments – Painting, plastic coating, galvanising and electrolytic (galvanic) protection.

What do learners need to learn?

How heat treatment and surface treatment processes affect the structure and properties of materials.

Common applications of each method.

6.5 **Causes** of material failure and their **prevention**.

Range:
Causes – Corrosion (oxidation of metals including rusting of ferrous metals, chemical composition and attack, stress corrosion), aging, physical (deformation, fracture, fatigue, creep, erosion).
Prevention – Coatings, sacrificial anodes and cathodes, galvanising.

What do learners need to learn?

Materials fail due to corrosion as a result of material consumption, chemical composition and attack, reduction in thickness and perforation.

The factors that contribute to fatigue failure and the three stages of creep.

The different methods of preventing corrosion and their relative benefits and limitations.

6.6 Materials testing **methods** and **interpretation of results**.

Range:
Methods – Visual inspection, tensile testing, toughness testing, hardness, corrosion resistance, wear resistance, fatigue (Wohler), electrical conductivity.
Interpretation of results – Hooke's law, load-extension graphs (tensile strength, elastic limit, ultimate tensile strength, maximum plastic deformation, calculation of stress, strain and Young's modulus), characteristic graphs of different materials, necking and transition zone in steel.

What do learners need to learn?	Skills
The advantages and limitations of different testing methods. The steps involved in the materials testing methods and how these determine the material properties. How to interpret load extension graphs.	MIR-CSD, MC4, MC7.

7 Mechanical principles

7.1 Principles of **motion and mechanics** in engineering and manufacturing systems.

Range:
Motion and mechanics – Newton's three laws of motion, types of forces (concurrent, non-concurrent, co-planar, non-contact), simply supported beams (loading, load distribution (point, uniformly distributed, combination of point and uniformly distributed), reaction forces, loaded components, shear force, bending moments).

What do learners need to learn?	Skills
The practical application of Newton's three laws of motion, including appropriate calculations. Calculation of stated variables for simply supported beams.	MC2, MC4, MC7, MC8.

7.2 Principles of **forces and energy**.

Range:
Forces and energy – Principle of conservation of momentum, principle of conservation of energy, D'Alembert's principle, potential and kinetic energy, gravitational force, frictional resistance, mechanical work, power, types of power sources (mechanical, electrical, renewable).

What do learners need to learn?	Skills
Calculations using equations of motion to determine displacement, velocity and uniform linear acceleration relating to falling objects and collisions between two objects in line. Explanation and examples of tractive effort, braking force, frictional resistance, rotational kinetic energy, moment of inertia, mechanical work, power in practical applications (fly wheels, springs, height, pressurised fluids). The function and relative advantages of the alternative power sources and examples of their use, including solar, hydro, wind, biofuel, geothermal, electric motors, internal combustion, fossil fuels, nuclear.	MC2, MC4, MC7, MC8.

8 Electrical and electronic principles

8.1 **Principles** of electrical and electronic systems.

Range:

Principles –

Basic principles of electricity and electronics – flow of electrons, charges, energy, power, networks, force, current, capacitance, waves, conduction, magnetism (flux density, field strength), electromagnetism, inductance, measurements of electrical quantities in electrical systems (standard units of measure, multimeters).

Electric circuit theories – voltage, current (alternating current (AC), direct current (DC)), power, resistance, potential difference and dividers, basic electrical elements, Ohm's law (series, parallel and combination circuits), Kirchhoff's current and voltage laws, phasor diagrams, protection systems (lightning arrestors, time graded over current protection, distance protection), residual current devices (RCD)).

DC circuit networks – resistors, capacitors and inductors in series, parallel circuits, combined circuits, semiconductors (forward and reverse bias, N-type and P-type), hierarchical design.

Signals – types (analogue, digital), waveforms (sinusoidal, square, rectangular, triangular, sawtooth), signal processing, signal conditioning, fan in and fan out.

What do learners need to learn?	**Skills**
The physical principles underpinning electrical and electronic systems and devices. The basic properties and principles of magnetism and electromagnetism and their common applications. The relationship between flux density and field strength. The definitions of terms used in electric circuit theory and their applications. The use of Ohm's law and electric circuit theories to calculate values in circuits, such as voltage, current and resistance. The relationship between voltage, current and power in AC circuits and how to represent them in graphs and phasor diagrams. Factors affecting the operation and applications of high-power electrical equipment and electronic devices. How differential protection schemes work to protect transmission lines. How transformer protection schemes work for common faults. The characteristics of DC circuit networks comprising resistors, capacitors and inductors in various arrangements, including time constants. The properties and applications of semiconductor diodes and transistors. The characteristics of the different concepts related to signals. The characteristics of analogue and digital systems, including their waveforms and applications.	EC1, EC2, MC2, MC4, MC5, MC7.

9 Mechatronics

9.1 The key **components** of a mechatronics system.

Range:
Components – Mechanical (gears, cams, linkages, levers, pulleys), electrical/electronic (sensors and transducers, microprocessors, microcontrollers, actuators), common drive devices (standard electrical motors, servo motors, stepper motors).

What do learners need to learn?
Mechatronics is the integration of mechanical and electronic systems to produce a functioning system.
The purpose and function of the mechanical and electrical components.

9.2 The **operation**, **function** and **applications** of **programmable logic controllers (PLC)** in mechatronic systems.

Range:
Programmable logic controllers – Types (unitary, unitary with modular features, modular), architecture.
Operation – Sensor signal conditioning, programming.
Function – Process blocks, motor driver integrated circuits, interface devices.
Applications – Robotic arms, conveyor belts, packaging, supervisory control and data acquisition (SCADA), remote technical units, animatronics.

What do learners need to learn?	Skills
The differences between the types of PLCs. An overview of how a PLC operates. An overview of the functions. The advantages and limitations of using PLCs for the applications given, compared to the alternatives (dedicated integrated circuits, computer-based systems).	DC1

9.3 The basic **principles** of hydraulics and pneumatics.

Range:
Principles – Transmission of power, fluid compressibility, components (valves, pumps, actuators, cylinders, compressors).

What do learners need to learn?
The differences between hydraulic and pneumatic systems, and their advantages and limitations.
The purpose and function of the stated components and how they are they are represented on schematic diagrams.

10 Engineering and manufacturing control systems

10.1 **Principles** and **applications** of control system theory.

Range:

Principles – Input, process (logic gates (AND, OR, NOT), timer, comparator, pulse unit, counter, latch), output, signal, feedback, open and closed loop systems, transfer function, summing points, analogue, digital, pulse width and amplitude modulation, how control systems are represented in diagrams.

Applications – Electrical, pneumatic, hydraulic, measured parameters (pressure flow, temperature, speed, position).

What do learners need to learn?	Skills
How to produce a system diagram with multiple inputs, outputs, a combination of process blocks and feedback, and explain its operation. Applications of open and closed loop control systems (under or over-damped, and time dependency). The advantages and disadvantages of open and closed loop control systems. The relationship between input and output (steady rate error). The relative advantages and disadvantages of analogue and digital signals in control systems. Applications of control systems in industry, including effective and efficient networked communication and data transmission.	MC5, DC1, DC4, DC6.

10.2 How **sensors and actuators** are **used in automation** control systems.

Range:

Sensors and actuators – Types (analogue, digital, active, passive), applications (switches, proximity sensors, laser, vision systems), power sources, hard-wired, wireless.

Uses in automation – Position and volume of objects being processed, mechanised lifting and moving of objects, measurement applications (electrical, mechanical, thermal, chemical, biological, optical, acoustic, radiation).

What do learners need to learn?	Skills
The purpose and function of the different types of sensors and actuators. Applications and uses of sensors and actuators.	DC1, DC4, DC6.

11 Quality management

11.1 Quality **standards**, **assurance, control** and **improvement**.

Range:
Standards – British standards, ISO standards, CE, engineering bodies (Engineering Council, Institution of Engineering and Technology (IET), Institution of Mechanical Engineers (IMechE), Society of Operations Engineers (SOE), Chartered Institution of Building services Engineers (CIBSE), Institute of Agricultural Engineers (IAgrE), Institute of the Motor Industry (IMI), The Welding Institute (TWI)).
Assurance and control – Culture of quality, right first time, quality standards (ISO9001), inspection and testing, traceability, document management and version control, process capability, statistical process control (SPC), six sigma, total quality management (TQM).
Improvement – Failure mode effect analysis (FMEA), Pareto analysis, cause and effect diagrams, quality circles.

What do learners need to learn?	**Skills**
The function, purpose and value of standards (safety, quality, compliance) and how to access this information. The roles and responsibilities of the engineering bodies. The main principles, purposes and outcomes of quality assurance, quality control, inspection and testing. The difference between quality control and quality assurance. The main requirements of quality standards. The reasons for document management and version control. The advantages and disadvantages of 100% sampling compared to statistical process control (SPC). The use of six sigma for high volume manufacture. The main principles, purposes, advantages and disadvantages of different approaches to quality improvement.	MIR-CSD, MC4, MC5, MC7.

11.2 **Types and applications** of Standard Operating Procedures (SOPs) and their **purposes**.

Range:
Types and applications – Manufacturing, quality, maintenance.
Purposes – Standardisation of activity, customer satisfaction, safety, training.

What do learners need to learn?	**Skills**
The typical format and content of SOPs. How SOPs are used in the different applications. The reasons for using SOPs (consistency, conformance to standards). How SOPs are produced, implemented and evaluated.	MIR-CSC, MIR-CSD, EC1, EC3.

12 Health and safety principles and coverage

12.1 The main requirements of key health and safety **legislation** applicable to engineering activities.

Range:

Legislation –

The Health and Safety at Work Act (HASAWA)
Management of Health and Safety at Work Regulations
Provision and Use of Work Equipment Regulations (PUWER)
Personal Protective Equipment (PPE) Regulations
The Control of Noise at Work Regulations
Manual handling operations regulations
Lifting operations and lifting equipment regulations (LOLER)
Work at Height Regulations
Electricity at Work Regulations
The Control of Electromagnetic Fields at Work Regulations (CEMFAW)
Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR)
Control of Substances Hazardous to Health (COSHH)

What do learners need to learn?	Skills
The main requirements of the current key legislation, how to access it and how it affects their own activities in the workplace. That the legislation should be satisfied by their company's safe systems of work and other procedures, and they therefore do not need to know every detail of the law. The purpose of legislation within the engineering industry: · why there is a need for the legislation · that there is legislation to cover every aspect of the workplace · how the legislation keeps them safe in the workplace · who is responsible for compliance with current regulations and legislation · health and safety culture, training and information	MIR-CSA.

12.2 The importance of health and safety practices within the workplace.

What do learners need to learn?
How health and safety legislation affects the frequency of accidents and related incidents. The importance of mental health and wellbeing in the workplace. The persons responsible for ensuring compliance – employer, employee, Health and Safety Executive (HSE). Implications of non-compliance.

12.3 **Responsibilities** for health and safety.

Range:

Responsibilities – Individual, employee and employer obligations, local, national, and global requirements.

What do learners need to learn?

Health and safety responsibilities of employees, including:

- work safely so as not to cause injury to self and others in the vicinity
- not to attempt any work task unless trained and authorised to do so
- co-operate with the employer to enable the duties placed on the employer to be performed
- have regard of any duty or requirement imposed upon the employer or any other person under any of the statutory provisions
- not interfere with or misuse anything provided in the interests of health, safety or welfare

Health and safety responsibilities of employers, including:

- minimising risks in the handling, storage and transport of articles and substances
- instruction, training and supervision to maintain high standards of health and safety at work
- maintaining the workplace and its environment to be safe and minimising risk to health
- to provide a statement of general health and safety policy
- provide arrangements for safety representatives and safety committees
- ensure the safety of visitors, contractors and members of the public

Differences between local, national and global requirements.

12.4 **Risk assessment**.

Range:

Stages of **risk assessment** – Identification of hazards (hazard and operability study (HAZOP), hazard identification (HAZID)), evaluation of risks (likelihood, severity, number of people affected), implementation of control measures (hierarchy of control: elimination, reduction/substitution, isolation, controls, administration/training/safe system of work, PPE).

What do learners need to learn?

The hazards associated with engineering and manufacturing contexts (equipment, stored energy, tools, electricity, harmful substances including gases, environments).

Common industrial injuries that can occur without appropriate precautions.

Methods of identifying hazards.

How to evaluate risks.

The hierarchy of control for control measures.

Types of control measures typically used in engineering (guarding, machine isolation, PPE (eye protection, safety shoes, ear protection, gauntlets, helmets).

Skills

MIR-CSB.

12.5 Health and safety **considerations** in specific engineering **contexts**.

Range:

Considerations – Safe systems of work, oxygen use in the workplace, asphyxiation hazards, heat, moving parts, fire and explosion hazards, fire safety, guarding, manual handling, permit to work, lock out tag out (LOTO), maintenance.

Contexts – Chemicals, equipment with moving parts, confined spaces, electrical testing, high voltage electrical (generation, distribution, isolation and storage).

What do learners need to learn?	Skills
The different considerations appropriate to a range of engineering contexts.	MIR-CSA.

12.6 Principles and practices relating to environmental **legislation** and **considerations**.

Range:
Legislation –

- Environmental Protection Act
- Pollution Prevention and Control Act
- Clean Air Act
- Radioactive Substances Act
- Controlled Waste Regulations
- Dangerous Substances
- Hazardous Waste Regulations

Considerations – ISO 14001, waste disposal.

What do learners need to learn?

The main requirements of the current key environmental legislation, how to access it and how it affects their own activities in the workplace.

That the legislation should be satisfied by their company's environmental policies and other procedures, and they therefore do not need to know every detail of the law.

The purpose of legislation within the engineering industry:
· why there is a need for the legislation
· who is responsible for compliance with the regulations

ISO 14001: Aims, benefits and consequences.

Methods of waste disposal (landfill, reuse, recycling, controlled waste) and their implications.

13 Business, commercial and financial awareness

13.1 **Principles** of commercial operations and **markets**.

Range:
Principles – Commercial priorities (profit, addressing stakeholder needs), efficiency, value added, non-value added, competition, supply and demand.
Markets – Customers, local, national, international.

What do learners need to learn?
The goals of commercial operations and how these are addressed.
How organisations address the needs of different customers and markets.
How organisations evaluate activities in terms of quality, cost and time.
The role of research and development and innovation to address changing customer needs.

13.2 Business and commercial **practices**.

Range:
Practices – Legal (tendering, contracts, warranties, force majeure, indemnity clauses, liabilities), management (resource allocation and planning, staffing, training and development), business models (traditional, agile), company management systems, policies and procedures.

What do learners need to learn?
How business practices influence the operation of engineering organisations.
The legislation affecting tendering and contracts.

13.3 Financial and economic **concepts**.

Range:
Concepts – Financial responsibility, recording financial transactions, sources of finance (loans, shares, capital), budgets, transactions, costs (direct, indirect, overheads), payment terms, revenue, creditors and debtors, cash flow, profit and loss, break even, assets (depreciation), liabilities, solvency, taxes, rates.

What do learners need to learn?
The meaning of the stated financial concepts and their implications for the operation of a business.

14 Professional responsibilities, attitudes, and behaviours

14.1 Professional **conduct and responsibilities** in the workplace.

Range:
Conduct and responsibilities – Job descriptions, behaviours required in the workplace, personal conduct (reputation, ethical responsibilities), levels of accountability in organisational structures (apprentice, operator, management, director), equality, diversity, accessibility, inclusion.

What do learners need to learn?
Purpose, function and typical content of job descriptions.
How behaviour and personal conduct in the workplace influence interactions with people.
How to seek advice and guidance, where necessary.
Expectations for reputation and ethical behaviour in the workplace.
The main responsibilities of the different roles in an organisation and how they affect the business in terms of accountabilities and inter-dependencies.
The main duties of an organisation regarding equality, diversity, accessibility and inclusion.

14.2 Continuous professional development (**CPD**) and professional recognition.

Range:
CPD – Training courses, industry placement, academic study, events and seminars.

What do learners need to learn?
What is CPD and how it motivates staff and improves performance.
Professional standards for engineering, as set out by the Engineering Council.

14.3 **Human factors** within engineering and manufacturing contexts.

Range:
Human factors – Human characteristics (physical, mental), workplace design (considerations, assessment criteria), human error.

What do learners need to learn?
How human characteristics, capabilities and limitations affect the company and production.
How the design of the workplace affects safety, comfort and productivity.
Causes of human error (insufficient training, fatigue, workload, stress) and methods to reduce these.

15 Stock and asset management

15.1 Stock and inventory management **principles** and **practices**.

Range:
Principles – Demand, stock turnover, cost of inventory, redundant stock / write down, obsolescence, minimum stock levels, supply chain, packaging/storage.
Practices – Just in time, made to stock, made to order, material requirements planning.

What do learners need to learn?
The purpose of effective stock and inventory management and control.
Key issues, risks, advantages and disadvantages associated with the different practices.

15.2 Asset management and control **principles**.

Range:
Principles – Capacity management (manufacturing resource planning, bottleneck), key stages of asset life cycle management (planning, acquisition, operation and maintenance, disposal), budgetary control practices (life cycle, whole life approach, depreciation).

What do learners need to learn?
The purpose and methodology of effective asset management.
Advantages and disadvantages associated with methods of capacity management.

16 Continuous improvement

16.1 Continuous improvement **principles** and **practices**.

Range:
Principles – Reflection and evaluation of processes, incremental change and improvement, key performance indicators (KPIs), implementation (plan, do, check, act – PDCA), 8 wastes (transportation, inventory, motion, waiting, excess production, overprocessing, defects, unused talent), lean, Kaizen.
Practices – Value stream mapping, visual management, 6S (sort, set in order, shine, standardise, sustain, safety), single minute exchange of dies (SMED), operation effective efficiency (OEE), total productive maintenance (TPM), kanban.

What do learners need to learn?
Methods of gathering feedback and evidence about performance, including types of KPIs and how these can be used to evaluate continuous improvement activities.
How the 8 wastes affect the performance of engineering activities.
Purpose, methodology, benefits and limitations of the different practices.

Skills
MIR-CSD.

17 Project and programme management

17.1 **Principles** of project management.

Range:
Principles – Project brief, project goals, success criteria, project life cycle (initiation, planning, implementation, monitoring, reporting, evaluation), constraints, risk management (budget, cost, quality, time, safety, resource availability, communication, reputation, changing requirements), collaborative working (matrix working, collaborative technologies).

What do learners need to learn?	Skills
How projects are defined and structured. The management practices, processes and documentation needed at each stage of the project. Types of risk and how these are managed throughout the life of the project, including the role of research and development. The benefits and limitations of collaborative working.	MIR-CSA, MIR-CSB.

17.2 **Roles** and **responsibilities** in projects.

Range:
Roles – Stakeholders (clients, regulators), project manager, team members.
Responsibilities – Communication, monitoring, planning, finance, reporting.

What do learners need to learn?	Skills
The responsibilities of the different roles and how they contribute to a project.	MIR-CSE.

17.3 Project **planning** and **control**.

Range:
Planning – Resource requirements (time, budget, human resources, training needs, communication needs, production facilities), Gantt charts, critical path analysis (CPA), project evaluation review technique (PERT), management of interdependencies, contingency planning.
Control – Monitoring reports (budget, quality, cost, time), manage by stages, manage by exception.

What do learners need to learn?	Skills
How to identify the resources required to carry out a project. The benefits and limitation of the different planning methods. How to plan projects using the different methods. How to monitor and evaluate the progress of projects. The reasons for reviewing and evaluating of projects to improve subsequent projects.	MIR-CSA, MIR-CSB, MIR-CSE, MC9.

Guidance for delivery

A variety of active teaching and learning activities should be used to engage learners in this common core. Opportunities for visits/engagement with local industry, employers and manufacturers should be provided throughout the delivery of the content – where appropriate, local employers could present details of recent projects, problems faced and how they were overcome. Learners' work placement experiences could be presented to peers detailing where knowledge and skills within the content was seen in practice.

Formative assessment for the content may include verbal Q&A, presentations to peers, observation of stock control activities etc. Reinforcement of learning can be encouraged through revisiting learning, group discussions, and the establishment of a peer support system within the cohort.

Providers must ensure content is delivered in line with current, up to date industry practices which will require:

- Current industry legislation, regulations, and technical information.
- Teaching coverage representing the type of equipment currently available and accepted for use in the UK industry.

Suggested learning resources

Books

- T F Waters, *Fundamentals of Manufacturing For Engineers*, CRC Press, 2017, ISBN: 113843485X
- Christoph Roser, *Faster, Better, Cheaper in the History of Manufacturing: From the Stone Age to Lean Manufacturing and Beyond*, Productivity Press, 2016, ISBN: 9781498756303
- Colin H Simmons, Dennis E Maguire, *Manual of Engineering Drawing: Technical Product Specification and Documentation to British and International Standards*, 3rd Edition, Butterworth-Heinemann, 2009, ISBN: 9780750689854
- Paul Clayton, *Essential Math Skills for Engineers*, John Wiley & Sons, 2009, ISBN: 9780470405024
- Millard F Beatty, *Principles of Engineering Mechanics: Volume 2 Dynamics - The Analysis of Motion (Mathematical Concepts and Methods in Science and Engineering)*, Springer, 2005, ISBN: 0387237046
- Gerardus Blokdyk, *Stock Management A Complete Guide - 2020 Edition*, 5STARCooks, 2021, ISBN: 1867301091
- Jeffrey Liker, *The Toyota Way, Second Edition: 14 Management Principles from the World's Greatest Manufacturer*, McGraw-Hill Education, 2020, ISBN: 1260468518
- David Shonnard, David Allen, *Sustainable Engineering: Concepts, Design and Case Studies*, Pearson, 2011, ISBN: 0132756544

Websites

- Engineering Industry Trends for 2020 - blog.v-hr.com/blog/engineering-industry-trends-for-2020
- Introduction to Engineering Mechanics - youtu.be/ksmsp9OzAsI
- Research Trends in Sustainable Manufacturing - link.springer.com/article/10.1007/s40684-019-00113-5
- Innovation Engineering - www.innovation-engineering.net/
- Principles of Sustainable Engineering - www.e-education.psu.edu/eme807/node/688
- ISO management standards in Engineering and Manufacturing - www.nqa.com/en-za/certification/sectors/engineering-manufacturing
- List of Environmental Laws - www.field.org.uk/list-of-environmental-laws
- Application of Newton's Laws - engineeringlibrary.org/reference/application-of-newtons-laws-doe-handbook
- Management: Drivers of Behavior - courses.lumenlearning.com/boundless-management/chapter/drivers-of-behavior

311 Maintenance engineering technologies: Mechanical

Level:	3
GLH:	680
Assessment method:	Practical assignment

What is this specialism about?

The purpose of this specialism is for learners to know and understand mechanical engineering systems commonly used in industry. Learners will have the opportunity to plan and undertake maintenance, fault finding, commissioning, testing and repair activities on mechanical systems, and complete associated documentation. Learners will plan, perform and evaluate their work whilst utilising a range of materials, tools, equipment and machinery.

Learners will develop their knowledge and understanding of, and skills in:

- Knowledge of mechanical principles and systems
- Knowledge and application of component classification, numbering and referencing systems
- Knowledge of how components are removed, replaced and repaired as part of mechanical engineering systems
- Skills to plan and prepare mechanical maintenance activities using evaluation
- Skills to select and use tools, equipment, machinery and technology safely and effectively to complete maintenance, installation and repair activities

Learners may be introduced to this specialism by asking themselves questions such as:

- How do mechanical systems operate and function?
- What components are used in mechanical systems?
- How is maintenance, installation and repair carried out within mechanical engineering?

Underpinning knowledge outcomes

On completion of this specialism, learners will understand:

1. Maintenance engineering technology - mechanical knowledge criteria

Performance outcomes

On completion of this specialism, learners will be able to:

2. Analyse requirements, specifications and technical information to enable the delivery of successful maintenance, installation, servicing and repair of mechanical plant and equipment.

3. Plan and prepare the maintenance, installation, servicing and repair of mechanical plant and equipment, taking into account the specific requirements and context.

4. Perform relevant maintenance, installation, servicing and repair of mechanical plant and equipment, using appropriate techniques and procedures to achieve the required quality outcomes and solutions.

5. Review and evaluate activities to help improve workplace systems and processes associated with maintenance, installation, servicing and repair of mechanical plant and equipment, demonstrating commercial awareness and accountability.

6. Communicate mechanical operations, maintenance, installation, servicing and repair information, proposals and solutions, producing, recording and explaining relevant technical information.

Completion of this specialism will give learners the opportunity to develop their Maths, English and Digital Skills. Details are presented at the end of the specification.

Specialism content

Outcome 1

Underpinning knowledge criteria for the performance outcomes

1.1 **Principles and techniques** for maintenance and repair.

Range:
Principles and techniques –

- removal and replacement activities – assembly and disassembly techniques, mechanical fixings/fastening
- conditions that determine repair – age of components, condition, costings, maintenance, replacement, repair, disposal, installation, downtime, productivity, quality, environmental
- maintenance and servicing strategies – reactive (condition-based monitoring, unplanned/emergency/post-fault), preventative (scheduled, planned, timed)
- disposal requirements – appropriate methods, documentation, legislation, sustainability and environmental considerations
- control documentation – schedules, specifications, method statements, authorisation, care and control procedures
- maintenance planning considerations – cost, production output, safety, skills and competency, equipment, job instructions)
- sources of information – data sheets, technical data, engineering drawings, exploded diagrams, planning sheets, workshop manuals, schematics
- types of tools – hand tools, power tools, test equipment, measuring instruments
- decommissioning considerations – down time, repair costs, environmental issues, productivity, quality, planning, lockouts, hazardous waste, risk assessments, permits, legislation.

What do learners need to learn?	**Skills**
Reasons of removal and replacement activities. Factors to be considered when determining either repair or replacement of assemblies or sub-assemblies. Types of documentation that are used to monitor, record and control maintenance activities and their typical contents. How to produce or amend appropriate technical documentation. The reasons for planning maintenance activities. Sources of information used in maintenance activities and how they are used. Types and purpose of tools and equipment used in maintenance activities. Disposal requirements appropriate to the waste and relevant legislation. Factors to be considered when decommissioning and their implications.	EC3, EC5, EC6, MC2, MC6, MC7, MC9, DC1, DC2, DC5.

Analyse requirements, specifications and technical information to enable the delivery of successful maintenance, installation, servicing and repair of mechanical plant and equipment (PO2)

1.2 Operation of **mechanical principles** and **systems**.

Range:

Mechanical principles – motions and forces (static and dynamic loading, stress, strain, tensile shear, compressive shear, moments, torque) thermal, friction, system principles (input, process and output), hydraulic, pneumatic, work done and efficiency, mechanical advantage.

Mechanical systems – pulleys, levers, gearbox, torque converters, clutches (mechanical, electronic, fluid), cooling, lubrication.

What do learners need to learn?	Skills
How the systems manage forces, power, and motion. Calculations of the specified values. Moments affecting levers and beams.	EC5, MC3, MC4.

1.3 Fundamentals of **common mechanisms** and **lifting equipment.**

Range:

Mechanisms – gears (characteristics of gears including teeth, root, pitch, meshing, backlash), gear box, gear trains, governors, levers, brakes, friction devices/clutches (mechanical, hydraulic, electromagnetic), structural components (frames, bearings, springs).

Lifting equipment – pulleys, jacks, cranes, hoists.

What do learners need to learn?	Skills
The functions of common mechanisms. The application of lifting equipment and mechanisms, and how they operate. Types of gear trains, including compound gears and the role of idler gears. Identify ties and struts in frames. Simple harmonic motion of springs. Factors of safety, including safe working loads, when working with lifting equipment.	EC5, MC6.

1.4 Key principles of **energy storage** and **transfer**.

Range:

Energy storage – heat, pressure (hydraulic, pneumatic), electrical, conversion of energy, methods of storage (batteries, capacitors, flywheels, pressure vessels).

Energy transfer – methods of energy transfer (mechanical, electrical, conduction, convection, radiation, heat, generation, co-efficient of friction), hydraulic/pneumatic systems.

What do learners need to learn?	Skills
Characteristics and methods of energy storage and transfer. The applications of energy storage and transfer methods. How energy forms are converted to enable storage.	MC4, MC6.

1.5 Mechanical **loadings** on structures and components.

Range:
Loadings – tension, compression, shear, bending and torsion (static and dynamic), torque, fatigue.

What do learners need to learn?	Skills
Calculations of mechanical loads on structures and components. Effects of mechanical loads on structures and components.	EC4, EC5, MC6, DC1, DC4.

1.6 **Construction and operation** of power transmission systems.

Range:
Construction and operation – types of gear (spur, helical, bevel, worm, rack and pinion), gear boxes, shafts, woodruff keys, cams, linkages, fluid power, drive belts, rams (pneumatic, hydraulic), lubrication systems (manual, gravity feed, forced, splash).

What do learners need to learn?	Skills
How power transmission systems work to achieve an output. Gear boxes, including compound gear trains and idlers. The characteristics of gears affecting the efficiency of transfer and changing the direction of motion. Types of drive belts and their applications. Advantages and limitations of different lubrication systems.	EC5, MC2, MC3, MC4, MC6.

1.7 **Systems**, **circuits** and **components** of electrical installations, including **properties**, **failure modes** and **protection methods**.

Range:
Systems – single phase, three phase.
Components – resistors, capacitors, diodes, transformers, motors.
Properties – voltage, current, resistance, impedance, power.
Failure modes – equipment failure, human error, environmental conditions.
Protection methods – isolation, earthing, fuses, fusible links, circuits breakers.

What do learners need to learn?	Skills
Function and operational characteristics of electrical components. The properties of electrical systems and circuits. The different types of electrical circuits. Identify common failure modes and protection methods. The reasons for the use of different protection methods.	MC2, MC3, MC4, MC6, DC1.

1.8 **Drive devices**, their purposes and applications.

Range:
Drive devices – motors, belts, shafts, gear boxes, clutches.

What do learners need to learn?	Skills
Purposes, outcomes and applications of common drive devices. The advantages and limitations of the different drive devices.	EC5, MC2, MC3, MC4, MC6, DC1.

1.9 **Sensing** and **measurement techniques**.

Range:
Sensing – temperature, vibration, linear dimensions and clearances, speed/position sensors, pressure sensors, liquid flow.
Measurement techniques – steel rule, dividers, square (engineers, combination), Vernier callipers (internal, external, digital), gauges (feeler, pressure, slip, height, thread, plug), micrometers (internal, external, depth), thermocouples, dial tester indicator (DTI), coordinate measuring machine (CMM), centre finders, laser level, comparison plates.

What do learners need to learn?	Skills
The purposes and applications of sensing equipment. The relative benefits and limitations of sensing and measurement techniques and technologies. How sensing and measurement technologies are used to measure parameters.	MC2, MC3, MC4, MC6, DC1.

1.10 **Component identification** and referencing systems.

Range:
Component identification – part numbers, identification numbers, bill of materials (BOM), proof marking, labelling, specifications, identification codes and technical data, manufacturers data sheets, manufacturers safety specifications, colour codes, schematic diagrams, BS, EN and ISO Standards.

What do learners need to learn?	Skills
The purposes and applications of numbering and referencing systems. How to interpret current BS, EN and ISO standards related to mechanical engineering, including classification, numbering and referencing.	MC2, MC3, MC4, MC6, DC1, DC5.

Perform relevant maintenance, installation, servicing and repair of mechanical plant and equipment, using appropriate techniques and procedures to achieve the required quality outcomes and solutions (PO4)

1.11 **Hand tools, power tools** and **equipment.**

Range:
Hand tools – spanners, sockets (ratchet, universal joints, extension bars), screwdrivers, torx, pry bars, punches, chisels, hacksaw, pliers, mole grips, side cutters, bolt cutters, files, hammers, mallets, crimpers, taps and dies.
Power tools – jigsaw, angle grinder, drills, multitool, reciprocating saw.
Equipment – lifts, jacks, hoist pulleys, welding (metal inert gas (MIG)/metal active gas (MAG)).

What do learners need to learn?	Skills
How to check the physical condition of tools prior to use. The suitable applications and limitations of the identified equipment. How to maintain tools and equipment and use safely, following all safety regulations relating to use. Risks and consequences of using non-authorised tools and equipment. The main differences between the welding processes. How to safely operate equipment, machinery and technology. How to follow relevant guidelines and instructions, limits of own authority and expertise, and seek advice and guidance, where necessary.	EC5, MC1, MC2, MC3, MC4, DC1, DC4.

1.12 **Effects** of **environmental conditions** on materials, components, wiring, and equipment.

Range:
Effects – failure modes, working condition, false readings, degradation, corrosion, ingress, egress, leakages, system errors, blockages, electrical faults, mechanical faults, debris, cracking, brittle, disintegration, cleanliness, clarity.
Environmental conditions – humidity, moisture, temperature, pressure, heat, pollution, dirt, debris, radiation, chemicals.

What do learners need to learn?	Skills
How environmental conditions can affect materials components, wiring and equipment, and their potential effects. Characteristics relating to material quality and condition. How materials degrade and fail, including monitoring, maintaining and preventative techniques. Appropriate methods of maintenance, management, storage, preservation and prevention for materials, tools and equipment.	EC5, MC1, MC2, DC1, DC4, DC6.

1.13 **CAD/CAM** systems and software.

Range:
CAD/CAM – features and functions (solid modelling, geometry manipulation, component drawing), programming methods (manual programming, conversational programming), data transfer**,** manufacturing simulation, operations**.**

What do learners need to learn?	Skills
The application and purpose of CAD/CAM systems and software across multiple dimensions and collaboration. The key principles of manufacturing using a CAD/CAM system.	EC5, MC2, MC4, MC5, MC6, DC1, DC4, DC5, DC6.

1.14 **Machine tools** and **machine elements**.

Range:
Machine tools – drills (pillar and bench), centre lathe, vertical milling machine, linisher, buffer/polisher, compressor.
Machine elements – manual and computer numerical control (CNC), methods of work holding (chuck, machine vice, jigs), tooling.

What do learners need to learn?	Skills
Identify machine tools, their functions and capabilities. Identify the elements of these machine tools and how these are used. How to safely operate machinery and technology. How to follow relevant guidelines and instructions, limits of own authority and expertise, and seek advice and guidance, where necessary.	EC5, MC1, MC2, MC3, MC5, DC1, DC4, DC6.

1.15 **Installation**, **configuration**, and integration of mechanical engineering systems.

Range:
Installation – client requirements, regulation requirements, requirements for service, commissioning, isolation, manufacturers specifications, tools and equipment.
Configuration – setting parameters, calibration, testing, first use, operating systems, specifications, tools and equipment.

What do learners need to learn?	Skills
Requirements, procedures and considerations for installation and configuration of engineering and manufacturing systems. How to safely use tools, equipment and technology to complete maintenance, installation and repair requirements. How to follow relevant guidelines and instructions, limits of own authority and expertise, and seek advice and guidance, where necessary.	EC5, MC1, MC2, MC3, MC4, MC5, MC7, DC1, DC4, DC6.

1.16 **Fault detection**, **diagnosis**, **resolution** and **isolation methods.**

Range:
Fault detection – self-diagnostic, unit substitution, input output, half split technique, end to end, operator experience, tools and equipment.
Fault diagnosis – sensory checks, collection of fault data, self-diagnosis, inspection, material testing, tools and equipment.

Resolution methods – replace, repair, adjust, modify.
Isolation methods – electrical isolation, lock out tag out (LOTO), release of stored energy.

What do learners need to learn?	Skills
Identifying faults utilising fault detection and diagnosis methods. Material testing methods and techniques. How to safely use tools, equipment and technology to detect and diagnose faults within assemblies and sub-assemblies. How to use resolution methods based on the fault diagnosis. Identify different isolation methods. The advantages and limitations of detection methods and isolation systems. How to apply safe isolation methods to complete resolution and rectification methods. How to follow relevant guidelines and instructions, limits of own authority and expertise, and seek advice and guidance, where necessary.	EC5, MC1, MC2, MC3, MC5, DC1, DC4, DC6.

1.17 Techniques for **disassembly**, modification and **re-assembly**.

Range:
Disassembly – removal of stored energy, isolation, removal of housing and components, proof marking, disposal requirements, documentation.
Re-assembly – sub-assemblies, replacement of lifed items, tightening techniques, QR codes, barcodes, adjustments, powering up, documentation.

What do learners need to learn?	Skills
Methods and procedures for the disassembly and re-assembly according to guidance and regulations. How to safely use tools, equipment and technology to disassemble, modify and re-assemble mechanical assemblies and sub-assemblies. Tightening techniques for different operations. The application and recording of different modification techniques. Types of lifed items. How to follow relevant guidelines and instructions, limits of own authority and expertise, and seek advice and guidance, where necessary.	EC5, MC1, MC2, MC3, MC4, MC5, MC7, DC1, DC4, DC6.

1.18 **Joining techniques**.

Range:
Joining techniques – permanent (welded, soldered, adhesive bonded, brazed, expansion fittings), semi-permanent (riveted, rivet nuts, folded, compression fittings), temporary (mechanical fastenings including screws, bolts, nuts, washers, shims, anti-rattle), interference fit.

What do learners need to learn?	Skills
The characteristics of the different joining techniques and their applications.	EC5, MC1, MC2, MC3, MC5.

Review and evaluate activities to help improve workplace systems and processes associated with maintenance, installation, servicing and repair of mechanical plant and equipment, demonstrating commercial awareness and accountability (PO5)

1.19 **Quality inspection**, **testing and recording methods**.

Range:

Quality inspection and testing methods – policies, procedures, guidance, second line verifications, organisational systems and requirements, sensory checks, checklists, maintenance instructions, data, reports, measurement, analysis of systems, test operation, communication, prior maintenance history, maintenance requirements, preventative measures.

Recording methods – maintenance logs, defect logs, reports, statements, checklists, equipment, digital technologies, amending documentation.

What do learners need to learn?	Skills
The purpose of quality inspection, testing and recording. Factors that can affect quality in mechanical engineering and quality assurance processes. How variations and defects in engineering products and components are managed. Application of methods and techniques used within quality inspection and testing. The reasons for quality inspection and testing and the impact of inadequate quality inspection and testing. How to complete and record quality processes as part of quality control, assurance and improvement.	EC3, EC4, EC5, EC6, MC2, MC5, MC6, MC10, DC1, DC2, DC4.

Communicate mechanical operations, maintenance, installation, servicing and repair information, proposals and solutions, producing, recording and explaining relevant technical information (PO6)

1.20 **Communicating technical information and data**.

Range:

Communicating – record, manage, store, amend, upload data, collaborative technologies (shared drives, email, conferencing, software and programs, forums).

Technical information and data – test data, test results, maintenance results and findings, fault information, inspection sheets, maintenance logs, repair methods.

What do learners need to learn?	Skills
How to communicate information effectively in written and verbal methods. The importance of technical documentation for communication. How to create technical reports for maintenance, installation and repair activities. How collaborative technology is used to communicate technical information and data. Current legislation including GDPR and organisational procedures that are used to manage data and increase confidentiality of sensitive information.	EC1, EC2, EC3, EC4, EC5, MC5, MC7, MC10, DC1, DC2, DC3, DC4, DC5.

1.21 Digital, information and communication technology (**ICT**).

Range:
ICT – data systems, recording systems, electronic document and management systems.

What do learners need to learn?	**Skills**
How technology and systems are used to manage engineering data and documentation. Application of software and ICT systems and techniques to record, manage, store and amend engineering information. Advantages and limitations of using ICT to record information.	EC4, EC5, MC5, MC10, DC1, DC3, DC4, DC5.

Practical criteria for performance outcomes

Outcome 2

2. Analyse requirements, specifications and technical information to enable the delivery of successful maintenance, installation, servicing and repair of mechanical plant and equipment.

2.1 Confirm the **type**, **scope** and **requirements** of the activity, task or problem.

Range:

Type – installation, re-installation, position, configuration, assembly, disassembly, modification**,** fault finding (electrical, electronic, data, system, operational, temperature), resolution methods, preventative measures, repairs, upgrade, downgrade.

Scope – tasks, features, costing, goals, deliverables, functions, requirements, outcomes, end product, depth, detail, time scales, sensory checks, maintenance records and schedules, agreed processes, evidence and data gathering, specifications, repair information, schematics, component diagrams, safety and recall instructions.

Requirements – expectations and desired output, performance requirements, client requirements, reliability, integration of information, health and safety legislation and regulations.

What do learners need to demonstrate?	**Skills**
Gather, analyse and interpret technical information, data and evidence to confirm type, scope and requirements for the task, considering performance, quality and compliance. Use information to identify and confirm issues, problems, faults and areas for investigations. Analyse and identify likely causes, agreed processes, methods, expectations and outcomes. Interrogate technical documentation considering the accuracy, relevance, currency and completion to understand issues and appropriate methods for resolution or further investigation. Use and respond effectively to specifications, repair information, observed evidence, recall instructions, maintenance tables and technical bulletins. Interpret and confirm all health and safety requirements of maintenance, installation and repair activities.	EC4, EC5, EC6, MC2, MC3, MC5, MC6, MC7, MC9, MC10, DC1, DC4.

2.2 Evaluate the **condition**, quality and **performance** of **components**, systems, **materials** and **resources.**

Range:

Condition – working condition, serviceability (degradation, deterioration, damage, corrosion, disintegration), safety.

Performance – efficiency, accuracy, effectiveness, tolerance, outputs, sustainability.

Components – mechanical, electro-mechanical.

Materials – non-ferrous (titanium and alloys), ferrous, thermosetting, thermoplastics, composites, smart materials.

Resources – maintenance instructions, maintenance manuals, data sheets, material safety data sheets (MSDS), recording forms, maintenance logs, test certificates, permit to work, health and safety regulations, environmental requirements, organisational procedures, client information, requirements, performance data and diagnostic information.

What do learners need to demonstrate?	Skills
Evaluate the condition of materials and components to ensure quality standards and requirements are met. Make effective decisions based on observation and information gathered to proceed with a task. Use diagnostic information and other evidence to determine mechanical system and component serviceability and feasibility for maintenance and repair activities.	EC4, EC5, MC2, MC5, MC6, MC10, DC4.

2.3 Interpret mechanical **representations**.

Range:
Representations – manuals, specifications, instructions, diagrams, schematics, working drawings, symbols, annotations, conventions, standards, commissioning reports, results, bulletins.

What do learners need to demonstrate?	Skills
Interpret mechanical representations to communicate and confirm details and requirements of the mechanical systems to support maintenance, installation and repair activities.	EC3, EC4, EC5, MC5, MC6, MC7, MC10, DC1, DC4.

Outcome 3

3. Plan and prepare the maintenance, installation, servicing and repair of mechanical plant and equipment, taking into account the specific requirements and context.

3.1 **Plan** and prepare **processes**, **resources**, **scope**, **technology**, **tools and equipment** to complete client expectations.

Range:
Plan – method statements, Standard Operating Procedures (SOPs), risk assessments, preparatory checks.
Processes – organisational, regulatory, maintenance, rectification, reporting, recording.
Resources – maintenance instructions, maintenance manuals, data sheets, MSDS, recording forms, maintenance logs, test certificates, permit to work, health and safety regulations, environmental requirements, organisational procedures, client information, requirements, performance data and diagnostic information.
Scope – tasks, features, costing, time constraints, goals, deliverables, functions, requirements, outcomes, end product, depth, detail, time scales, sensory checks, maintenance records and schedules, agreed processes, evidence and data gathering, specifications, repair information, schematics, recall instructions.
Technology, tools and equipment – drills, pliers, spanners, screwdrivers, torx, files, hammers, Allen keys, test equipment (CMM, multimeters, diagnostic testers), measuring tools (micrometers (internal, external, depth), Vernier callipers), pressure source, slip gauges, comparison plates.

What do learners need to demonstrate?	Skills
Produce plans using information gathered to meet client requirements, including human resources and service impact, following SOPs. Confirm technology, tools and equipment availability to complete client requirements with consideration of prior maintenance history. Identify components and parts that are required. Review, confirm and record stock levels, ordering processes, and lead-in times to complete the required task or activity. Evaluate and plan for wastage, disposal, recyclability and sustainability in maintenance, service and repair tasks and activities.	EC1, EC2, EC3, EC4, EC5, EC6, MC2, MC3, MC4, MC7, MC8, MC9, DC5.

3.2 **Risk assessment**.

Range:
Risk assessment – assessments of hazards (health and safety considerations, pneumatics, hydraulics, mechanical, electro-mechanical, temperature, abrasive wheels, hazardous substances, pressurised fluids, equipment, moving under suspended loads, risk of slips, trips and falls, working in restricted spaces), evaluation of risk (severity, impact), control measures (permits to work, SOPs, PPE), documentation.

What do learners need to demonstrate?	Skills
Complete risk assessments and implement control measures for maintenance, installation and repair activities, communicating risks according to policies and procedures. Complete risk management for maintenance and repair activities of mechanical systems. Confirm processes, outcomes and mitigations used to reduce potential risks and issues.	EC1, EC2, EC3, EC4, EC5, DC1, DC2, DC4.

3.3 Quality, accuracy and completeness of **information** and **resources**.

Range:
Information – identification codes and technical data, manufacturers data sheets, manufacturers safety specifications, MSDS, colour codes, component numbering, schematics, bill of materials, sensory checks, fault data, checklists, reports, measurements, test results, inspection sheets, technical bulletins, repair method statements (issue dates, amendments).
Resources – policies, procedures, regulations, guidance, second line verifications, organisational systems and requirements, maintenance logs, defect logs, reports, equipment, data systems, electronic document and management systems.

What do learners need to demonstrate?	Skills
Application of information and resources to ensure components are correct, complete, free of fault, and conform to specifications, grades, and dimensions. Application of calibration requirements of components and equipment prior to commencing and procedures for out-of-date calibrations.	EC4, EC5, MC2, MC3, MC4, MC6, MC7, MC8, MC9, DC1, DC2, DC4, DC5.

3.4 **Preparatory checks** for compliance, quality and functionality.

Range:
Preparatory checks – tools, equipment, calibration, isolation, work area, sensory.

What do learners need to demonstrate?	Skills
Carry out of preparatory checks on materials, resources, tools, equipment, and other technologies. The advantages and limitations of preparatory checks for compliance, quality and functionality. Application of safe isolation and calibration checks on tools and equipment.	EC5, MC2, DC1.

3.5 **Plan and prepare** work areas for mechanical engineering processes.

Range:
Plan and prepare – tools, equipment, materials, technical data, schematics, health and safety, workflow process.

What do learners need to demonstrate?	Skills
Plan and prepare the work area for mechanical engineering processes. Application of adjustments to tools and equipment according to specifications and parameters in preparation for the task to be completed.	EC5, EC6, MC2, DC1.

Outcome 4

4. Perform relevant maintenance, installation, servicing and repair of mechanical plant and equipment, using appropriate techniques and procedures to achieve the required quality outcomes and solutions.

4.1 **Maintain**, install and repair mechanical engineering systems, equipment, and components.

Range:
Maintain – total preventative, reactive, planned (timed, annual, bi-annual, shutdown), corrective, condition-based monitoring.

What do learners need to demonstrate?	Skills
Complete maintenance, installation and repair activities of mechanical engineering systems within agreed specifications, timeframes and standards of quality. Safely operate equipment, machinery and technology when completing maintenance, installation and repair tasks. Follow relevant guidelines and instructions, and seek advice and guidance, where necessary. Responsibilities of working individually and collaboratively to meet task, client and organisational standards, policies and expectations, in accordance with working practices. Follow and comply with all health and safety requirements of maintenance, installation and repair activities.	EC5, EC6. MC1, MC2, MC3, MC4, MC5, MC7, DC1, DC4, DC6.

4.2 **Diagnostic** and measurement techniques, **tools and equipment**

Range:
Diagnostic tools and equipment – test equipment (CMM, multimeters, diagnostic testers), measuring tools (micrometers (internal, external, depth), Vernier callipers, DTI gauge, feeler gauges), pressure source, hydraulic simulators, slip gauges, comparison plates.

What do learners need to demonstrate?	Skills
Follow manufacturer's instructions when using diagnostic and measuring equipment. Application of diagnostic and measurement techniques, tools and equipment to obtain accurate information and results on performance, condition and compliance. Use fault detection techniques, tools and equipment to identify and locate faults and their causes on mechanical assemblies, sub-assemblies, systems and equipment. Interpret and evaluate built in tests and self-diagnostic results.	EC5, EC6, MC1, MC2, MC3, MC4, MC5, MC6, MC7, DC1, DC4, DC6.

4.3 **Reactive** and **preventative** maintenance procedures.

Range:
Reactive – condition-based monitoring, unplanned/emergency/post-fault.
Preventative – scheduled, planned, timed.

What do learners need to demonstrate?	**Skills**
Determine schedule of tasks (remove, replace, repair) from diagnostic and measurement findings. Follow procedures to complete reactive maintenance tasks. Complete preventative maintenance procedures to reduce further failure or downtime, including recommending amendments to the maintenance schedule where appropriate.	EC5, MC1, MC2, MC3, MC4, MC5, MC6, DC4.

4.4 **Disassemble**, **assemble** and **install** mechanical components, devices and systems.

Range:
Disassemble – removal of stored energy, isolation, powering down, removal of components, proof marking, disposal requirements, documentation.
Assemble – sub-assemblies, replacement of lifed items, attachments, fixings, tightening techniques, powering up, testing, documentation.
Install – client requirements, regulation requirements, commissioning, isolation, manufacturers specifications, replacement parts, testing.

What do learners need to demonstrate?	**Skills**
Processes to be followed when assembling and disassembling components, devices and systems. Apply requirements and specifications to ensure correct assembly and disassembly, considering technical data and instructions. Accurately position, install, calibrate and configure devices and equipment to agreed requirements and specifications. Consider and follow regulatory requirements throughout.	EC5, MC1, MC2, MC3, MC4, MC5, MC7, DC1, DC4, DC6.

4.5 **Commissioning** and **return to service** of mechanical engineering systems and technology.

Range:
Commissioning – design, construct, test, integration, set parameters, check tolerances, live testing, test before first use, confirm performance and accuracy, alterations, wiring.
Return to service – power up, confirm functionality, reliability, serviceability, handover.

What do learners need to demonstrate?	**Skills**
Commission and return to service mechanical devices, systems, and technology to fully operational condition. Application and purpose of testing the system is operating correctly, adjusting where necessary. Carry out commissioning procedures safely and checking the safety of mechanical systems.	EC5, EC6, MC1, MC2, MC3, MC5, DC1, DC4, DC6.

4.6 Planned maintenance, **servicing** and repair **tasks**.

Range:
Servicing – fluid maintenance, component change, calibration, condition checks, functional checks, fitting replacement.
Tasks – measuring, cutting, drilling, filing, removing and replacing bolts, screws and clips, replacing seals, extracting and replacing damaged fasteners, applying surface treatments.

What do learners need to demonstrate?	Skills
Perform planned maintenance, servicing and repair tasks to mechanical engineering systems according to schedules. Review and analyse outputs, data and readings.	EC5, MC1, MC2, MC3, MC5, MC7, DC3, DC4.

4.7 **Re-instate** work areas.

Range:
Re-instate – equipment is functioning to specification, fluids and lubricants renewed and refilled, material removal, work area is back to original condition, returning of tools and equipment, correct disposal requirements followed, housekeeping.

What do learners need to demonstrate?	Skills
Reinstate work areas back to original condition upon completion of tasks. Manage the area ensuring the area is left in safe condition. Check and return all tools and equipment back to storage facilities. Follow disposal requirements appropriate to the waste and relevant legislation.	EC5, MC2.

Outcome 5

5. Review and evaluate activities to help improve workplace systems and processes associated with maintenance, installation, servicing and repair of mechanical plant and equipment, demonstrating commercial awareness and accountability.

5.1 **Safe systems of work** and legal compliance.

Range:
Safe systems of work – procedures, safe working practices, risk assessment and management, recording and documentation.

What do learners need to demonstrate?	Skills
Anticipate and identify potential risks and actual risks. Apply safe systems of work, following policies and procedures relevant to the task. Complete documentation of activities and reflect on outcomes. Follow and comply with safe working practices and legal requirements.	EC4, EC5, EC6, MC1, MC2, MC4, MC5, MC6, MC10, DC1, DC2, DC4.

5.2 Work area **practices**.

Range:
Practices – safe working, guidance, regulatory requirements, organisational requirements, scope, responsibility, documentation, reporting procedures.

What do learners need to demonstrate?	Skills
Monitor working area practices to prevent, resolve, manage, and mitigate issues arising during tasks. Identify potential issues, following correct procedures to report and record. Implement practices to manage stock levels, materials, and availability of resources.	EC4, EC5, MC1, MC2, MC5, MC6, MC7, MC10, DC4, DC5.

5.3 Deal promptly and effectively with **issues**.

Range:
Issues – health and safety, age related use/wear, not meeting required standards or regulations, decommissioning, inappropriate use/lack of training, time constraints, cost implications, documentation discrepancies, tool and equipment failure.

What do learners need to demonstrate?	Skills
Deal with issues encountered throughout mechanical engineering tasks in a timely manner. Apply problem solving techniques to resolve issues within the limits of own authority. Follow reporting procedures to ensure issues are communicated. Report and escalate issues where falling outside the limits of own authority.	EC3, EC4, EC5, EC6, MC2, MC6, MC9, MC10, DC1.

5.4 Carry out **quality monitoring** and **assurance checks** to review processes.

Range:

Quality monitoring – inspections, reviewing (self, peer to peer, supervisory), amending, supervisory checks, checking of quality.

Assurance checks – checking and validating reliability and durability, post-repair performance and functional tests.

What do learners need to demonstrate?	**Skills**
Conduct quality monitoring and assurance checks as part of a team's maintenance, servicing and repair operations and processes. Review efficiency of processes, practices and outcomes to improve quality. Consistently check validity, accuracy and relevance of documentation. Communicate technical information, advice and suggestions for improvements. Suggest strategies to increase efficiency of quality monitoring processes, with consideration of performance and potential improvements.	EC4, EC5, EC6, MC4, MC5, MC6, MC10, DC1, DC2, DC3, DC4.

5.5 Make positive **contributions** for mechanical maintenance and operations whilst working effectively with others.

Range:

Contributions – communicate solutions, improvements, ideas, findings, designs, technical information, recommendations, research, facts, methods, operational changes, maintenance requirements.

What do learners need to demonstrate?	**Skills**
Recommend improvements, methods and other technical information as part of a team. Contribute effectively to maintenance, operations and team discussions. Working effectively with others and be willing to assist where necessary and appropriate.	EC2, EC3, EC4, EC5, EC6, MC2, MC9, MC10.

5.6 Respond constructively to **feedback** and identify opportunities for personal and **organisational** improvement.

Range:

Feedback – reviews (self, peer to peer, supervisory), appraisals, reports, progress reviews, evaluation, client.

Organisational – commercial, productivity, safety, growth, activities, services, quality, technology, continuing professional development (CPD).

What do learners need to demonstrate?	**Skills**
Reflect and respond constructively to feedback provided throughout tasks and activities. Make suggestions for organisational improvements for commercial, productivity, and safety. Review feedback, identifying and implementing opportunities, personally and professionally within the organisation.	EC2, EC6, MC2, MC9, MC10, DC2, DC3.

Outcome 6

6. Communicate mechanical operations, maintenance, installation, servicing and repair information, proposals and solutions, producing, recording and explaining relevant technical information.

6.1 **Record and amend** technical information, data, risks, and issues.

Range:
Record and amend – diagrams, working drawings, reports, results, maintenance logs, defect logs, statements, checklists, test certificates.

What do learners need to demonstrate?	**Skills**
Record findings, data, risks, and issues from the task accurately to support mechanical maintenance, servicing and repair work. Create technical reports to communicate maintenance, installation and repair information. Make amendments and recommendations at relevant stages, within the limits of own authority. Use records, information, and data to inform improved practices, recommendations, and continuous improvement.	EC3, EC4, MC2, MC5, DC1, DC3, DC4, DC5, DC6.

6.2 Complete **handover procedures**.

Range:
Handover – complete work, incomplete work, modifications, faults, further investigation, suggested updates and improvements to maintenance schedules, demonstration of system functionality, confirmation (completion, responsibility, quality standards, specific requirements and outcomes, agreement), due date of next maintenance activity, technical documentation.
Procedures – communication methods (verbal, written, digital), de-brief, technical documentation (test results and certificates, calibration certificates, appropriate calculations, maintenance schedules, drawings and diagrams, software update information, maintenance records), signatures and date.

What do learners need to demonstrate?	**Skills**
Accurately communicate handover information following organisational procedures The functionality of the system following maintenance, installation and repair activities. Communicate the reasons for non or partial functionality following maintenance, installation and repair activities, including any outstanding faults, defects or issues, and suggestions for future improvements. Follow and implement document version control for relevant paperwork and technical documentation where updates are made, including maintenance schedules and representations. Follow organisational handover procedures. Apply organisational policies (brief, meetings, documentation) to the handover procedures.	EC1, EC4, MC2, MC7, MC8, MC10, DC1, DC4.

6.3 Team-working, inter-personal skills and communication with **technical** and **non-technical audiences**.

Range:
Technical audiences – supervisors, engineers, colleagues, skilled technicians, apprentices.
Non-technical audiences – stakeholders, customers, clients, investors, colleagues (sales/service advisers, in house health and safety advisor).

What do learners need to demonstrate?	**Skills**
Communicate technical information as part of a team. Work as part of a team to obtain desired outcomes, maintaining positive and professional working relationships. Interact using inter-personal skills to contribute to team success. Adapt technical language appropriately to communicate with non-technical client/customers and colleagues.	EC1, EC2, EC3, EC4, EC5, EC6, DC3, DC4.

6.4 Communication methods, including **written, verbal** and **media.**

Range:
Written – note taking (lists, mind mapping/flow diagrams), writing style (business letter, memo writing, report styles and format, email), proofreading and amending text, use of logbook for planning and prioritising work schedules, graphical presentation techniques (graphs, charts and diagrams).
Verbal – speaking (with peers, supervisors, use of appropriate technical language, tone and manner), listening (use of paraphrasing and note taking to clarify meaning), impact and use of body language in verbal communication.
Media – inter/intranet (manuals, data, analytical software, manufacturers' catalogues), spreadsheets, databases, fault diagnostic software.

What do learners need to demonstrate?	**Skills**
Communicate information, requirements, expectations, plans, performance, and outcomes using different communication methods to convey and confirm maintenance, installation and repair information.	EC1, EC2, EC3, EC4, EC5, EC6, MC7, MC8, MC10, DC1, DC2, DC3, DC4, DC5.

Guidance for delivery

Opportunities for visits/engagement with local industry, employers and manufacturers should be provided throughout the delivery of the content within this specialism – where appropriate local employers could present details of recent projects including a variety of mechanical engineering maintenance activities, problems faced and how they were overcome. Learners work placement experiences could be presented to peers detailing where knowledge and skills within the content was seen in practice.

Formative assessment for the content may include oral Q&A, presentations to peers, observation of measuring activities etc. Reinforcement of learning can be encouraged through revisiting learning, group discussions, and the establishment of a peer support system within the cohort.

Providers must ensure content is delivered in line with current, up-to-date industry practice which will require;

- Provision of appropriate tools, equipment and test instrumentation for demonstration and practical training purposes
- Teaching coverage representing the type of equipment currently available and accepted for use in the UK industry

Suggested learning resources

Books

- E. Avallone, T. Baumeister, A. Sadeh. *Marks' Standard Handbook for Mechanical Engineers*, 11th edition, McGraw-Hill. 2006. ISBN 978-0071428675.
- C. McCauley. *Machinery's Handbook,* 30th edition, Industrial Press Inc. 2016. ISBN 978-0831130916.
- N. J. Smith, *Engineering Project Management,* 3rd edition, Wiley-Blackwell Publishing, 2007, ISBN 9781405168021

Websites

- Institution of Mechanical Engineers **www.imeche.org**
- Health and Safety Executive www.hse.gov.uk

Scheme of Assessment – Maintenance engineering technologies: Mechanical

The Maintenance engineering technologies: Mechanical Occupational Specialism is assessed by one practical assignment. The duration of the assessment is 22 hours. Learners will be assessed against the following assessment themes:

- Health and safety
- Planning and preparation
- Systems and components
- Working with faults
- Reviewing and reporting

By completing the following tasks:

Task	Typical Knowledge and skills
Task 1 – Plan and prepare	Displays a breadth of knowledge and practical skills that enables them to plan and prepare for carrying out maintenance, installation and repair activities on mechanical systems. Candidates will need to produce documents and complete risk assessments that clearly details how they plan to complete the maintenance, servicing, installation and repair activities to meet the requirements of the brief.
Task 2 – Perform maintenance	Applies a breadth of knowledge, understanding and practical skills that enables them to carry out maintenance, servicing, installation and repair activities on a variety of mechanical systems and machines. The task is carried out in a clear and logical sequence. Works in a safe manner, able to carry out fault detection, diagnosis, isolation and resolution methods effectively Tools, materials and equipment are selected and used correctly.
Task 3 – Review and report	Displays a breadth of knowledge and understanding in the evaluation of their maintenance, installation and repair activities, recommending personal and organisational improvements to the process. Justifications for diagnosis, isolation and resolution methods used. Justifications for how peer review feedback was considered and implemented.
Task 4 - Handover	Displays breath of knowledge and skills in communicating technical information to a variety of audience types and how to complete handover procedures effectively. Candidates will need to demonstrate critical thinking skills when responding to peer review feedback.

The information provided in the following tables demonstrates to approved providers the weightings of each performance outcome and how each performance outcome is assessed.

Performance outcome and weighting (%)	***High level tasks*** *Provide specific instructions for candidates to provide evidence for and are the same for every version of the assessment*	**Assessment Theme**	***Typical evidence***
PO2 Analyse requirements, specifications and technical information to enable the delivery of successful maintenance, installation, servicing and repair of mechanical plant and equipment. (10%)	T1- Plan and prepare	Planning and preparation	List of requirements and resources, and method statement.
PO3 Plan and prepare the maintenance, installation, servicing and repair of mechanical plant and equipment, taking into account the specific requirements and context (20%)	T1- Plan and prepare T2 – Perform	Health and safety Planning and preparation Systems and components Health and safety Planning and preparation Systems and components	List of requirements and resources, and method statement. Risk assessment. Work area preparation

PO4 Perform relevant maintenance, installation, servicing and repair of mechanical plant and equipment, using appropriate techniques and procedures to achieve the required quality outcomes and solutions (40%)	T1- Plan and prepare T2 – Perform T3 – Review and report T4 - Handover	Health and safety Health and safety Systems and components Working with faults Health and safety Systems and components Reviewing and reporting Health and safety Reviewing and reporting	List of requirements and resources, and method statement. Risk assessment. Completed test records, updated maintenance records and control documents Annotated method statement. Maintenance activities and work area re-instatement Technical report Technical report and maintenance schedule. Handover meeting.
PO5 Review and evaluate activities to help improve workplace systems and processes associated with maintenance, installation, servicing and repair of mechanical plant and equipment, demonstrating commercial awareness and accountability (20%)	T2 – Perform T3 – Review and report T4 - Handover	Systems and components Reviewing and reporting Health and safety Reports and information	Completed test records, updated maintenance records and control documents Annotated method statement. Technical report and maintenance schedule. Handover meeting.

PO6 Communicate mechanical operations, maintenance, installation, servicing and repair information, proposals and solutions, producing, recording and explaining relevant technical information (10%)	T3 – Review and report T4 - Handover	Reports and information Reports and information	Technical report and maintenance schedule. Handover meeting

312 Maintenance engineering technologies: Mechatronic

Level:	3
GLH:	680
Assessment method:	Practical assignment

What is this specialism about?

The purpose of this specialism is for learners to know and understand mechatronic engineering systems and undertake key procedures for maintenance, installation and repair. Learners will have the opportunity to plan, perform and evaluate their work whilst utilising a range of materials, tools, equipment and machinery.

Learners will develop their knowledge and understanding of, and skills in:

- Knowledge of common mechanisms and controllers
- Knowledge and application of component classification, numbering and referencing systems
- Knowledge of how components are removed, replaced and repaired as part of mechatronic systems
- Skills to plan and prepare mechatronic maintenance activities using evaluation
- Skills to select and use tools, equipment, machinery and technology safely and effectively to complete maintenance, installation and repair activities

Learners may be introduced to this specialism by asking themselves questions such as:

- How do mechatronic systems operate and function?
- What components are used in mechatronic systems?
- How is maintenance, installation and repair carried out within mechatronic engineering?

Underpinning knowledge outcomes

On completion of this specialism, learners will understand:

1. Maintenance engineering technology - mechatronics knowledge criteria

Performance outcomes

On completion of this specialism, learners will be able to:

2. Analyse requirements, specifications, and technical information to enable the delivery of successful maintenance, installation, servicing and repair of mechatronic technology, systems, and equipment.

3. Plan and prepare the maintenance, installation, servicing and repair of mechatronic technology, systems, and equipment, considering the specific requirements and context.

4. Perform relevant maintenance, installation, servicing and repair of mechatronic technology, systems, and equipment, using appropriate techniques and procedures to achieve the required quality outcomes and solutions.

5. Review and evaluate activities to help improve workplace systems and processes associated with maintenance, installation, servicing and repair of mechatronic technology, systems, and equipment, demonstrating commercial awareness and accountability.

6. Communicate mechatronic maintenance, installation, servicing and repair information, proposals, and solutions, producing, recording, and explaining relevant technical information.

Completion of this specialism will give learners the opportunity to develop their Maths, English, and Digital Skills. Details are presented at the end of the specification.

Specialism content

Outcome 1

Underpinning knowledge criteria for the performance outcomes

1.1 **Principles and techniques** for maintenance and repair.

Range:

Principles and techniques –

- removal and replacement activities – assembly and disassembly techniques, mechanical fixings/fastening
- conditions that determine repair – age of components, condition, costings, maintenance, replacement, repair, disposal, installation, downtime, productivity, quality, environmental
- maintenance and servicing strategies – reactive (condition-based monitoring, unplanned/emergency/post-fault), preventative (scheduled, planned, timed)
- disposal requirements – appropriate methods, documentation, legislation, sustainability and environmental considerations
- control documentation – schedules, specifications, method statements, authorisation, care and control procedures
- maintenance planning considerations – cost, production output, safety, skills and competency, equipment, job instructions)
- sources of information – data sheets, technical data, engineering drawings, exploded diagrams, planning sheets, workshop manuals, schematics
- types of tools – hand tools, power tools, test equipment, measuring instruments
- decommissioning considerations – down time, repair costs, environmental issues, productivity, quality, planning, lockouts, hazardous waste, risk assessments, permits, legislation.

What do learners need to learn?	**Skills**
Reasons of removal and replacement activities. Factors to be considered when determining either repair or replacement of assemblies or sub-assemblies. Types of documentation that are used to monitor, record and control maintenance activities and their typical contents. How to produce or amend appropriate technical documentation. The reasons for planning maintenance activities. Sources of information used in maintenance activities and how they are used Types and purpose of tools and equipment used in maintenance activities. Disposal requirements appropriate to the waste and relevant legislation. Factors to be considered when decommissioning and their implications.	EC3, EC5, EC6, MC2, MC6, MC7, MC9, DC1, DC2, DC5.

Analyse requirements, specifications, and technical information to enable the delivery of successful maintenance, installation, servicing and repair of mechatronic technology, systems, and equipment (PO2)

1.2 Operation of **mechanical systems** and **principles.**

Range:

Mechanical systems – gearbox, cams and followers, pulleys, levers, actuation, cooling, lubrication, integrated systems (hydraulic, pneumatic, electronic).

Mechanical principles – motions and forces (static and dynamic loading, stress, strain, tensile shear, compressive shear, moments, torque), thermal, friction, system principles (input, process and output), hydraulic, pneumatic, work done and efficiency, mechanical advantage.

What do learners need to learn?	Skills
How the systems manage forces, power, and motion. The principles and applications of mechatronics and the systems that use them. The operation of systems that uses mechatronics by representation of block diagrams. Calculations of the specified values. Moments affecting levers and beams. Calculations of mechanical loads on structures and components. Effects of mechanical loads on structures and components.	EC5, MC3, MC4.

1.3 Fundamentals of common **mechanisms** and **controllers**.

Range:

Mechanisms – levers, rams, valve blocks, gears (characteristics of gears including teeth, root, pitch, meshing, backlash), gear trains, gearbox, governors, pulleys, cylinders, cams and followers, friction devices/clutches (mechanical, hydraulic, electromagnetic), structural components (frames, bearings, springs, bushes), overhead cranes, hoists.

Controllers – microprocessors, microcontrollers, sensors (displacement, position, proximity, velocity and motion, force, pressure, flow, viscosity, level, temperature, light sensors and switches), actuators, motors (electric, stepper, control, flow control), automation, artificial intelligence (AI).

What do learners need to learn?	Skills
The functions of common mechanisms used in mechatronics. The operation and application of sensors and actuators. Types of gear trains, including compound gears and the role of idler gears. How controllers maintain and control performance.	EC5, MC6.

1.4 Key principles of **energy storage** and **transfer**.

Range:
Energy storage – heat, chemical, kinetic, potential, electrical, conversion of energy, pressure.
Energy transfer – methods of energy transfer (conduction, convection, radiation, mechanical, electrical, heating) energy efficiencies, circuits, transmissions, drive trains, torque converters, belts, hydraulic/pneumatic systems, automation, robotics, AI.

What do learners need to learn?	Skills
Characteristics and methods of energy storage and transfer. The applications of energy storage and transfer methods. How energy forms are converted to enable storage.	MC4, MC6.

1.5 **Construction** and **operation** of power conversion systems.

Range:
Construction – electrical devices (transformers, regulators, invertors), electro-mechanical devices (motor-generators), control panels, rectifiers, rotary convertors, hydraulic, pneumatic, surface mount circuitry, through-hole technology, fluid power.
Operation – frequency control, diodes, converting alternating current (AC) to direct current (DC) and back, DC-DC, DC-AC convertors, efficiencies of systems, power flow.

What do learners need to learn?	Skills
Functions and operation of power conversion systems, and the components required to construct them. Principles of power conversion systems and how they work to achieve an output. Power flow analysis techniques and their applications.	EC5, MC2, MC3, MC4, MC6.

1.6 **Components** of electrical installations, including **failure modes** and **protection methods**.

Range:
Components – passive components (resistors, capacitors, inductors, transformers, circuit board, wire harness, connectors), active components (voltage and current sources), generators, transistors, operational amplifiers, diodes (Zener, photodiodes, light emitting diodes (LED`s)), residual current devices (RCD), wiring (standards, earth leakage).
Failure modes – equipment failure (human error, environmental conditions), circuit faults (symmetrical and unsymmetrical faults, short circuit and open circuit connections, high resistance connections, connections to earth), power supply faults (components out of specification, intermittent faults, fault and tolerance testing), digital faults (input, output, logic).
Protection methods – relays, earthing and bonding, fuses, circuit breakers, solenoids, diodes.

What do learners need to learn?	Skills
Function and operational characteristics of electrical components, cabling and wiring. Identify common failure modes and protection methods. The advantages and limitations of protection methods. How to interpret and apply the latest edition IET wiring regulations HSE directive.	MC2, MC3, MC4, MC6, DC1.

1.7 **Properties** and applications of electrical and electronic **systems, circuits** and **components**.

Range:

Properties – voltage, current, resistance, impedance, power.

Systems – mechatronic, mechanical, electro-mechanical, electrical, power electronics, microelectronics, digital electronics, integrated circuits, Wheatstone bridge, amplifiers, power supplies, sequential, asynchronous/synchronous logic, programmable systems, data logging and measurement systems, automation, AI.

Circuits – series, parallel, series-parallel, open and closed circuits, control, latching, power, timer, auxiliary, printed circuit board (PCB), surface mount technology (SMT).

Components – switches, sensors (temperature, flow, level, pressure, light, proximity, position), diodes, transistors, rectifiers, capacitors, RCD's, resistors, inductors, relays, actuators, motors (electric, stepper, control, flow control), visual display units (VDU), human machine interface (HMI), transformers, operational amplifiers, potentiometers.

What do learners need to learn?	Skills
The nature and behaviour of electricity in systems. The properties and characteristics of electrical and electronic systems, circuits and components within mechatronic engineering. Different types of electrical circuits (series and parallel) and their applications in mechatronic engineering. The application of different types of systems and their components. Application of electrical and electronic laws and theorems.	MC3, MC4, MC6, DC1.

1.8 **Drive devices,** their purposes, **parameters,** and applications.

Range:

Drive devices – basic input/output system (BIOS), hardware, motherboard, adjustable drive devices, motors, pumps, belts, rams, gear trains, gearboxes, clutches, modulators, control units, sensing units, AC and DC units, microprocessors, microcontrollers, output devices, robotics, AI.

Parameters – inputs, process and outputs, memory, peripherals, hardware specifications, software and programming languages, logic operators (AND, OR, NOT).

What do learners need to learn?	Skills
Fundamentals, application and purpose of drive devices. The advantages and limitations of drive units. The purpose and outcomes of drive device parameters and how they contribute to the operation of the system. How programmable logic controllers (PLC's) operate and their applications in mechatronics. Purpose and outcomes of system testing.	EC5, MC2, MC3, MC4, MC6, DC1.

1.9 **Sensing** and **measurement techniques and technologies**.

Range:

Sensing – temperature, acceleration, position, pressure, displacement, vibration, proximity, velocity/motion, force, flow (gas, liquid), viscosity, level, photo electric, switches.

Sensing technologies – inductive, capacitive, hall effect, operational amplifiers, Wheatstone bridge, filtering, transformers, piezoelectric transducers.

Measurement techniques and technologies – multimeters, oscilloscopes, signal generators, thermocouples, residual temperature devices (RTD's), data logging, analysers (logic, dewpoint, hygrometers, hydrometers, thermometer).

What do learners need to learn?	**Skills**
The purposes and applications of electronic systems that measure performance. The relative benefits and limitations of sensing and measurement techniques and technologies. How programming, sensing and measurement technologies are used to measure parameters and signals.	MC2, MC3, MC4, MC6, DC1.

1.10 **Component classification**, **numbering** and **referencing systems**.

Range:

Component classification – passive, active, electromechanics, manufacturers specifications.

Numbering – part numbers, manufacturers specifications, bill of materials (BOM), labelling, specifications.

Referencing systems – wiring identification, identification codes and technical data, standard reference designations for electrical and electronic parts and equipment (IEEE standards), colour codes, component numbering, QR codes, barcodes, CE marking, IET wiring regulations (British Standard 7671), BS3939, EMC Directive, BS, IEC, EN and ISO Standards.

What do learners need to learn?	**Skills**
The purposes and applications of component classification, numbering and referencing. Standardised component numbering and referencing systems. How to interpret current IET, BS, IEC, EN and ISO standards related to mechatronic systems including classification, numbering and referencing. Classification, numbering and referencing related to engineering documents.	MC2, MC3, MC4, MC6, DC1, DC5.

Perform relevant maintenance, installation, servicing and repair of mechatronic technology, systems, and equipment, using appropriate techniques and procedures to achieve the required quality outcomes and solutions. (PO4)

1.11 **Hand** and **power tools,** and **equipment.**

Range:

Hand tools – spanners, sockets (ratchet, universal joints, extension bars), screwdrivers, torx, pry bars, punches, chisels, hacksaw, pliers wire strippers, soldering iron, de-soldering tool, mole grips, stilsons, side cutters, bolt cutters, files, hammers, mallets, crimpers, drills, jig saws, riveter, rivet nut gun.

Power tools – jigsaw, angle grinder, multitool, reciprocating saw, cutters, grinders, drills, electrical, pneumatic, hydraulic.

Equipment – test equipment (multimeters, electronic control unit (ECU) diagnostic testers), measuring tools (micrometers, Vernier callipers, flow meter, pressure gauges), oscilloscopes, signal generators, logic probes, data logger, lifts, jacks, hoist pulleys, overhead crane, welding (TIG, MIG/MAG, MMA), forging, isolation kit, digital technologies (laptops, tablets, mobile applications, handheld PC (H/PC), personal digital assistant (PDA)).

What do learners need to learn?	Skills
How to check the physical condition of tools prior to use. The suitable applications and limitations of the identified equipment. The main differences between the welding processes The application of computerised monitoring systems using digital technologies. How to maintain tools and equipment and use safely, following all safety regulations relating to use. How to safely operate equipment, machinery and technology. How to follow relevant guidelines and instructions, limits of own authority and expertise, and seek advice and guidance, where necessary.	EC5, MC1, MC2, MC3, MC4, DC1, DC4.

1.12 **Effects** of **environmental conditions** on materials, components, wiring, and equipment.

Range:

Effects – failure modes, working condition, false readings, degradation, corrosion, ingress, egress, leakages, system errors, blockages, electrical faults, mechanical faults, debris, cracking, brittle, disintegration, cleanliness, clarity.

Environmental conditions – humidity, moisture, temperature, pressure, heat, pollution, dirt, debris, radiation, chemicals.

What do learners need to learn?	Skills
How environmental conditions can affect materials components, wiring and equipment, and their potential effects. Characteristics relating to material quality and condition. How materials degrade and fail, including monitoring, maintaining and preventative techniques. Appropriate methods of maintenance, management, storage, preservation and prevention for materials, tools and equipment.	EC5, MC1, MC2, DC1, DC4, DC6.

1.13 Electro-static sensitive devices and components (**ESD's**), and **measures of protection**.

Range:

ESDs – metal oxide semiconductor field effect transistors (MOSFETs), complementary metal oxide semiconductor (CMOS) integrated circuits, micro-controllers.

Measures for protection – ESD-safe bags and foam, grounding mats, straps and tools, anti-static garments, wrist straps.

What do learners need to learn?	Skills
Static electricity and the effect it has on semi-conductors. The importance of anti-static practices during transport, storage, maintenance, servicing, and repair work, and the implications of not following these practices.	MC2, MC6, DC1, DC6.

1.14 **CAD/CAM** systems and software.

Range:

CAD/CAM – features and functions (solid modelling, geometry manipulation, component drawing), programming methods (manual programming, conversational programming), data transfer**,** manufacturing simulation, operations, 3D CAD**.**

What do learners need to learn?	Skills
The application and purpose of CAD/CAM systems and software across multiple dimensions and collaboration. The key principles of manufacturing using a CAD/CAM system.	EC5, MC2, MC4, MC5, MC6, DC1, DC4, DC5, DC6.

1.15 **Machine tools** and **machine elements**.

Range:

Machine tools – drills, lathes, milling machines, threading machines, grinders, polishers.

Machine elements – manual and computer numerical control (CNC), chucks, tooling (end mills, fluted cutters, facing cutters, boring bars, drills, centre-drills, taps, reamers).

What do learners need to learn?	Skills
Identify machine tools and machine elements. The characteristics and functions of machine tools and elements used in mechatronics. How to safely operate machinery and technology. How to follow relevant guidelines and instructions, limits of own authority and expertise, and seek advice and guidance, where necessary.	EC5, MC1, MC2, MC3, MC5, DC1, DC4, DC6.

1.16 **Installation**, **configuration**, and **integration** of mechatronic engineering systems.

Range:

Installation – client requirements, regulation requirements, requirements for service, 1st fix, 2nd fix of components, commissioning, isolation, manufacturers specifications, schematic diagrams, tools and equipment.

Configuration – setting parameters, calibration, testing, first use, operating systems, specifications, tools and equipment.

Integration – combining of systems, functions, designs, planning, processes, tools and equipment.

What do learners need to learn?	**Skills**
Application of installation techniques, configuration and integration using the correct tools, following regulations. Requirements and procedures for installation and configuration of mechatronic systems. How to safely use tools, equipment and technology to complete maintenance, installation and repair requirements. How to follow relevant guidelines and instructions, limits of own authority and expertise, and seek advice and guidance, where necessary.	EC5, MC1, MC2, MC3, MC4, MC5, MC7, DC1, DC4, DC6.

1.17 **Fault detection**, **diagnosis**, **isolation** and **resolution methods**.

Range:

Fault detection – self-diagnostic, unit substitution, input output, half split technique, 6 point technique, component isolation, operational experience, end to end, top-down techniques, timed test run, sensory checks, HMI, reported faults, fault history, tools and equipment.

Fault diagnosis – sensory checks, collection of fault data (mean time between failures (MTBF), mean time to repair (MTTR)), self-diagnosis, inspection, digital systems, material testing, tools and equipment.

Isolation methods – electrical isolation, supply, testing for dead, keys, lock out, electrical, temperature, pressure, residual current device (RCD), tools and equipment.

Resolution methods – replace, repair, adjust, modification, preventative measures, reporting, recording, informing, amendments.

What do learners need to learn?	**Skills**
Identifying faults utilising fault detection and diagnosis methods. Material testing methods and techniques. How to safely use tools, equipment and technology to detect and diagnose faults within assemblies and sub-assemblies. How to use resolution methods based on the fault diagnosis. Identify different isolation methods and carry out safe and effective isolation. The advantages and limitations of detection and diagnosis methods How to interpret and comply with relevant legislation. How to apply safe isolation methods to complete resolution and rectification methods. How to follow relevant guidelines and instructions, limits of own authority and expertise, and seek advice and guidance, where necessary.	EC5, MC1, MC2, MC3, MC5, DC1, DC4, DC6.

1.18 Techniques for **disassembly**, **modification and re-assembly**.

Range:

Disassembly – powering down, isolation, removal of housing and components, disposal requirements, documentation, tools and equipment.

Modification – changing of parameters, wiring, adjustments, process change, tools and equipment, re-calibration, reporting and recording, housing and components.

Re-assembly – structures, removal, powering up, documentation, attachments, fixings, QR codes, barcodes, tightening techniques, tools and equipment.

What do learners need to learn?	Skills
Methods and procedures for the disassembly and re-assembly according to guidance and regulations. How to safely use tools, equipment and technology to disassembly, modify and re-assemble mechanical assemblies and sub-assemblies. Tightening techniques for different operations. The application and recording of different modification techniques. How to follow relevant guidelines and instructions, limits of own authority and expertise, and seek advice and guidance, where necessary.	EC5, MC1, MC2, MC3, MC4, MC5, MC7, DC1, DC2, DC4, DC6.

1.19 **Joining techniques**.

Range:

Joining techniques – permanent (welded, soldered, adhesive bonded, brazed, expansion fittings), semi-permanent (riveted, folded, compression fittings), temporary (mechanical fastenings including screws and bolts), interference fit.

What do learners need to learn?	Skills
The characteristics of the different joining techniques and their applications.	EC5, MC1, MC2, MC3, MC5.

Review and evaluate activities to help improve workplace systems and processes associated with maintenance, installation, servicing and repair of mechatronic technology, systems, and equipment, demonstrating commercial awareness and accountability (PO5)

1.20 **Quality inspection**, **testing and recording methods**.

Range:

Quality inspection and testing methods – policies, procedures, guidance, organisational systems and requirements, sensory checks, checklists, maintenance instructions, data, reports, measurement, analysis of systems, communication, prior maintenance history, maintenance requirements, preventative measures.

Recording methods – maintenance logs, defect logs, reports, statements, checklists, equipment, digital technologies, amending documentation.

What do learners need to learn?	Skills
The purpose of quality inspection, testing and recording. Factors that can affect quality in mechatronic engineering and quality assurance processes. How variations and defects in engineering products and components are managed. Application of methods and techniques used within quality inspection and testing. The importance of using the correct quality inspection and testing techniques. The impact of inadequate quality inspection and testing. How to complete and record quality processes as part of quality control, assurance and improvement.	EC3, EC4, EC5, EC6, MC2, MC5, MC6, MC10, DC1, DC2, DC4.

Communicate mechatronic maintenance, installation, servicing and repair information, proposals, and solutions, producing, recording, and explaining relevant technical information. (PO6)

1.21 **Communicating technical information and data**.

Range:

Communicating – record, manage, store, amend, upload data, collaborative technologies (shared drives, email, conferencing, software and programs, forums).

Technical information and data – test data, test results, maintenance results and findings, fault information, inspection sheets, maintenance logs, repair methods.

What do learners need to learn?	Skills
How to communicate information effectively in written and verbal methods. The importance of technical documentation for communication. How to create technical reports for maintenance, installation and repair activities. How collaborative technology is used to communicate technical information and data. Current legislation including GDPR and organisational procedures that are used to manage data and increase confidentiality of sensitive information.	EC1, EC2, EC3, EC4, EC5, MC5, MC7, MC10, DC1, DC2, DC3, DC4, DC5.

1.22 Digital, information and communication technology (**ICT**).

Range:

ICT – data systems, recording systems, electronic document and management systems.

What do learners need to learn?	Skills
How technology and systems are used to manage engineering data and documentation. Application of software and ICT techniques to record, manage, store and amend engineering information. Advantages and limitations of using ICT to record information.	EC4, EC5, MC5, MC10, DC1, DC3, DC4, DC5.

Practical criteria for performance outcomes

Outcome 2

2. Analyse requirements, specifications, and technical information to enable the delivery of successful maintenance, installation, servicing and repair of mechatronic technology, systems, and equipment.

2.1 Confirm the **type**, **scope** and **requirements** of the activity, task or problem.

Range:

Type – installation, re-installation, position, configuration, assembly, disassembly, modification**,** fault finding (mechanical, electrical, data, system, pressure, operational, temperature), resolution methods, preventative measures, repairs, upgrade, downgrade.

Scope – tasks, features, costing, goals, deliverables, functions, requirements, outcomes, end product, depth, detail, time scales, sensory checks, maintenance records and schedules, agreed processes, evidence and data gathering, specifications, repair information, wiring diagrams, recall instructions.

Requirements – expectations and desired output, performance requirements, customer requirements, reliability, integrate information, health and safety legislation and regulations.

What do learners need to demonstrate?	**Skills**
Gather, analyse and interpret technical information, data and evidence to confirm type, scope and requirements for the task, considering performance, quality and compliance. Use information to identify and confirm issues, problems, faults and areas for investigations. Analyse and identify likely causes, agreed processes, methods, expectations and outcomes. Interrogate technical documentation considering the accuracy, relevance, currency and completion to understand issues and appropriate methods for resolution or further investigation. Use and respond effectively to specifications, repair information, observed evidence, recall instructions, maintenance tables and technical bulletins. Interpret and confirm all health and safety requirements of maintenance, installation and repair activities.	EC4, EC5, EC6, MC2, MC3, MC5, MC6, MC7, MC9, MC10, DC1, DC4.

2.2 Evaluate the **condition**, quality and **performance** of **components**, systems, **materials** and **resources**.

Range:

Condition – working condition, serviceability (degradation, deterioration, damage, corrosion, disintegration), safety.

Performance – efficiency, accuracy, effectiveness, tolerance, outputs, reliability, sustainability.

Components – transmitters, displays, gauges, wiring, pipes, circuit boards, cable trays, sensors, switches, breakers, fuses, transistors, rectifiers, transformers.

Materials – non-ferrous, ferrous, thermosetting, thermoplastics, composites, smart materials.

Resources – maintenance instructions, maintenance manuals, data sheets, material safety data sheets (MSDS), recording forms, maintenance logs, test certificates, work permits, health and safety regulations, environmental requirements, organisational procedures.

What do learners need to demonstrate?	Skills
Evaluate condition of components to ensure quality standards and requirements are met. Make effective decisions based on observation and information gathered to proceed with a task. Use diagnostic information and other evidence to determine mechatronic system and component serviceability and feasibility for maintenance and repair activities.	EC4, EC5, MC2, MC5, MC6, MC10, DC4.

2.3 Interpret mechatronic **representations**.

Range:
Representations – manuals, specifications, instructions, diagrams (block, circuit, schematic, wiring), drawings, symbols, annotations, conventions, standards, reports, results, statements, signage, tags, labels.

What do learners need to demonstrate?	Skills
Interpret representations to communicate and confirm details and requirements of the mechatronic systems to support maintenance, installation and repair processes.	EC3, EC4, EC5, MC5, MC6, MC7, MC10, DC1, DC4.

Outcome 3

3. Plan and prepare the maintenance, installation, servicing and repair of mechatronic technology, systems, and equipment, considering the specific requirements and context.

3.1 **Plan** and prepare **processes**, resources, **scope**, **technology, tools and equipment** to complete client expectations.

Range:
Plan – method statements, Standard Operating Procedures (SOPs), risk assessments, preparatory checks.
Processes – organisational, regulatory, maintenance, rectification, reporting, recording.
Resources – maintenance instructions, maintenance manuals, data sheets, MSDS, recording forms, maintenance logs, test certificates, work permits, health and safety regulations, environmental requirements, organisational procedures.
Scope – tasks, features, costing, goals, deliverables, functions, requirements, outcomes, end product, depth, detail, time scales, sensory checks, maintenance records and schedules, agreed processes, evidence and data gathering, specifications, repair information, wiring diagrams, recall instructions.
Technology, tools and equipment – drills, pliers, wire cutters, wire strippers, de-soldering tool, spanners, screwdrivers, files, hammers, torx, Allen keys, crimping tool, test equipment (clamp meters, electronic control unit (ECU), diagnostic testers), measuring tools (micrometers, Vernier callipers), oscilloscopes, signal generators, logic probes, data logger, soldering iron, multimeters.

What do learners need to demonstrate?	Skills
Produce plans using information gathered to meet client requirements, including human resources and service impact, following SOPs. Check technology, tools and equipment availability to complete client requirements with consideration of history. Review, confirm and record stock levels, ordering processes, and lead-in times to complete the required task or activity. Evaluate and plan for wastage, disposal, recyclability and sustainability in maintenance, service and repair tasks and activities.	EC1, EC2, EC3, EC4, EC5, EC6, MC2, MC3, MC4, MC7, MC8, MC9, DC5, DC6.

3.2 **Risk assessment**.

Range:
Risk assessment – assessments of hazards (health and safety considerations, pneumatics, hydraulics, mechanical, electro-mechanical, temperature, abrasive wheels, hazardous substances, pressurised fluids, equipment, moving under suspended loads, risk of slips, trips and falls, working in restricted spaces), evaluation of risk (severity, impact), control measures (permits to work, SOPs, PPE), documentation.

What do learners need to demonstrate?	Skills
Complete risk assessments and implement control measures for maintenance, installation and repair activities, communicating risks according to policies and procedures. Complete risk management for maintenance and repair activities of mechatronic systems. Confirm processes, outcomes and mitigations used to reduce potential risks and issues.	EC1, EC2, EC3, EC4, EC5, DC1, DC2, DC4.

3.3 Quality, accuracy and completeness of **information** and **resources**.

Range:
Information – identification codes and technical data, manufacturers data sheets, manufacturers safety specifications, MSDS, colour codes, component numbering, schematics, material lists, sensory checks, fault data, checklists, reports, measurement, test results, inspection sheets, repair method statements (issue dates, amendments).
Resources – policies, procedures, regulations, guidance, second line verifications, organisational systems and requirements, maintenance logs, defect logs, reports, equipment, data systems, electronic document and management systems.

What do learners need to demonstrate?	Skills
Application of information and resources to ensure components are correct, complete, free of fault, and conform to specifications, grades, and dimensions. Application of calibration dates and requirements of components and equipment prior to commencing, the procedures for out-of-date calibrations and electrical safety checks.	EC4, EC5, MC2, MC3, MC4, MC6, MC7, MC8, MC9, DC1, DC2, DC4, DC5.

3.4 **Preparatory checks** for compliance, quality and functionality.

Range:
Preparatory checks – tools, equipment, calibration, isolation requirements, work area, sensory, specifications, bill of materials (BOM), test dates (PAT test, calibration, electrical safety).

What do learners need to demonstrate?	Skills
Carry out preparatory checks on materials, resources, tools, equipment, and other technologies. The advantages and limitations of preparatory checks for compliance, quality and functionality. Application of safe isolation and calibration checks on tools and equipment.	EC5, MC2, DC1.

3.5 **Plan and prepare** work areas for mechatronic processes and outcomes.

Range:
Plan and prepare – tools, equipment, materials, technical data, specifications, health and safety, workflow process, procedures, requirements, communication methods (verbal, digital), housekeeping, signage, barriers, training.

What do learners need to demonstrate?	Skills
Plan and prepare the work area for mechatronic processes and outcomes. Application of adjustments to tools and equipment according to specifications and parameters in preparation for the task to be completed.	EC5, EC6, MC2, DC1.

Outcome 4

4. Perform relevant maintenance, installation, servicing and repair of mechatronic technology, systems, and equipment, using appropriate techniques and procedures to achieve the required quality outcomes and solutions.

4.1 **Maintain**, install and repair mechatronic systems, equipment, and components.

Range:
Maintain – total preventative, reactive, planned (timed, annual, bi-annual, shutdown), corrective, condition-based monitoring.

What do learners need to demonstrate?	Skills
Complete maintenance installation and repair activities of mechatronic systems, equipment and components within agreed specifications, timeframes and standards of quality. Safely operate equipment, machinery and technology when completing maintenance, installation and repair tasks. Follow relevant guidelines and instructions, and seek advice and guidance, where necessary. Responsibilities of working individually and collaboratively to meet task, client and organisational standards, policies and expectations, in accordance with working practices. Application of electrical and electronic laws and theorems in maintenance, installation and repair activities. Follow and comply with all health and safety requirements of maintenance, installation and repair activities.	EC5, EC6, MC1, MC2, MC3, MC4, MC5, MC7, DC1, DC4, DC6.

4.2 **Diagnostic** and measurement techniques, **tools and equipment**.

Range:
Diagnostic tools and equipment – test equipment (multimeters, diagnostic testers, CMM), measuring tools (micrometers, Vernier callipers, rule), oscilloscopes, signal generators, logic probes, data logger, flow meter, pressure gauges, pressure sources, calibrators.

What do learners need to demonstrate?	Skills
Follow manufacturer's instructions when using diagnostic and measuring equipment. Application of diagnostic and measurement techniques, tools and equipment to obtain accurate diagnostic information and measurements. Use fault detection techniques, tools and equipment to identify and locate faults and their causes in electrical and electronic devices, systems and equipment. Interpret and evaluate built in tests and self-diagnostic results.	EC5, EC6, MC1, MC2, MC3, MC4, MC5, MC6, MC7, DC1, DC4, DC6.

4.3 **Reactive** and **preventative** maintenance procedures.

Range:
Reactive – control monitoring, condition-based monitoring, unplanned, emergency, post-fault.
Preventative – scheduled, planned, timed.

What do learners need to demonstrate?	Skills
Determine schedule of tasks (remove, replace, repair) from diagnostic and measurement findings, according to the life cycle of components and systems. Follow procedures to complete reactive maintenance tasks. Complete preventative maintenance procedures to reduce further failure or downtime, including recommending amendments to the maintenance schedule where appropriate.	EC5, MC1, MC2, MC3, MC4, MC5, MC6, DC4.

4.4 **Disassemble**, **assemble** and **install** mechatronic components, devices and systems.

Range:
Disassemble – powering down, isolation, functional safety (safety instrumented systems (SIS), safety integrity level (SIL)), removal of components, disposal requirements, documentation, de-solder, tools and equipment.
Assemble – structures, removal, powering up, documentation, attachments, fixings, tightening techniques.
Install – client requirements, regulation requirements, 1st fix, 2nd fix of components, commissioning, isolation, manufacturers specifications, replacement parts, pipework, fasteners, functional safety checks.

What do learners need to demonstrate?	Skills
Processes to be followed when assembling and disassembling components, devices and systems. Apply requirements and specifications to ensure correct assembly and disassembly, considering technical data and instructions. Accurately position, install, calibrate and configure devices and equipment to agreed requirements and specifications. Consider and follow regulatory requirements throughout.	EC5, MC1, MC2, MC3, MC4, MC5, MC7, DC1, DC4, DC6.

4.5 **Commissioning** and **return to service** mechatronic devices, systems and technologies.

Range:
Commissioning – design, construct, test, integration, set parameters, check tolerances, offload testing, live testing, test before first use, confirm performance and accuracy, alterations, wiring.
Return to service – power up, confirm functionality, reliability, serviceability, handover.

What do learners need to demonstrate?	Skills
Commission and return to service mechatronic devices, systems, and technology to fully operational condition. Application and purpose of testing the system is operating correctly, adjusting where necessary. Carry out commissioning procedures safely and checking the safety of mechatronic systems.	EC5, EC6, MC1, MC2, MC3, MC5, DC1, DC4, DC6.

4.6 Planned maintenance, **servicing** and repair tasks.

Range:

Servicing – fluid maintenance, component and circuit replacement, calibration, condition checks, functional checks.

Tasks – measuring, cutting, drilling, filing, removing and replacing bolts, screws and clips, replacing seals, extracting and replacing damaged fasteners, soldering and brazing, applying surface treatments.

What do learners need to demonstrate?	Skills
Perform planned essential maintenance, servicing and repair tasks for maintenance of mechatronics according to schedules. Review and analyse outputs, data and readings.	EC5, MC1, MC2, MC3, MC5, MC7, DC3, DC4.

4.7 **Re-instate** work areas.

Range:

Re-instate – equipment is functioning to specification, work area is back to original condition, returning of tools and equipment, correct disposal requirements followed, housekeeping.

What do learners need to demonstrate?	Skills
Reinstate work areas back to original condition upon completion of tasks. Manage the area ensuring the area is left in safe condition. Check and return all tools and equipment back to storage facilities. Follow disposal requirements appropriate to the waste and relevant legislation.	EC5, MC2.

Outcome 5

5. Review and evaluate activities to help improve workplace systems and processes associated with maintenance, installation, servicing and repair of mechatronic technology, systems, and equipment, demonstrating commercial awareness and accountability.

5.1 **Safe systems of work** and legal compliance.

Range:
Safe systems of work – procedures, safe working practices, risk assessment and management, recording and documentation.

What do learners need to demonstrate?	Skills
Anticipate and identify potential risks and actual risks. Apply safe systems of work, following policies and procedures relevant to the task. Complete documentation of activities and reflect on outcomes. Follow and comply with safe working practices and legal compliance.	EC4, EC5, EC6, MC1, MC2, MC4, MC5, MC6, MC10, DC1, DC2, DC4.

5.2 Work area **practices**.

Range:
Practices – safe working, guidance, regulatory requirements, organisational requirements, scope, responsibility, documentation, reporting procedures.

What do learners need to demonstrate?	Skills
Monitor working area practices to prevent, resolve, manage, and mitigate issues arising during tasks. Implement practices to manage stock levels, materials and availability of resources.	EC4, EC5, MC1, MC2, MC5, MC6, MC7, MC10, DC4, DC5.

5.3 Deal promptly and effectively with **issues**.

Range:
Issues – health and safety, age related use/wear, not meeting required standards or regulations, decommissioning, inappropriate use/lack of training, time constraints, cost implications, documentation discrepancies, tool and equipment failure.

What do learners need to demonstrate?	Skills
Deal with issues encountered throughout engineering tasks in a timely manner. Apply problem solving techniques to resolve issues within limits of own authority, seeking guidance where necessary. Follow reporting policies and procedures to ensure issues and problems are communicated. Report and escalate issues and problems where falling outside the limits of own authority.	EC3, EC4, EC5, EC6, MC2, MC6, MC9, MC10, DC1.

5.4 Carry out **quality monitoring** and **assurance checks** to review processes.

Range:

Quality monitoring – inspections, reviewing (self, peer to peer, supervisory), amending, supervisory checks, second line, sampling and checking of quality.

Assurance checks – checking and validating reliability and durability, currency, accuracy, relevance, post-repair performance and functional tests.

What do learners need to demonstrate?	Skills
Conduct quality monitoring and assurance checks as part of a team's maintenance, servicing and repair operations and processes. Review efficiency of processes, practices and outcomes to improve quality. Consistently check validity, accuracy and relevance of documentation. Communicate technical information, advice and suggestions for improvements. Suggest strategies to increase efficiency of quality monitoring processes, with consideration of performance and potential improvements.	EC4, EC5, EC6, MC4, MC5, MC6, MC10, DC1, DC2, DC3, DC4.

5.5 Make positive **contributions** for maintenance and operations whilst working effectively with others.

Range:

Contributions – communicate solutions, improvements, ideas, findings, designs, technical information, recommendations, research, facts, methods, operational changes, maintenance requirements.

What do learners need to demonstrate?	Skills
Recommend improvements, methods and other technical information as part of a team. Contribute effectively to maintenance, operations and team discussions. Working effectively with others and willing to assist where necessary and appropriate.	EC2, EC3, EC4, EC5, EC6, MC2, MC9, MC10.

5.6 Respond constructively to **feedback** and identify opportunities for personal and **organisational** improvement.

Range:

Feedback – reviews (self, peer to peer, supervisory), appraisals, reports, progress reviews, evaluation, client.

Organisational – commercial, productivity, safety, growth, activities, services, quality, technology, continuing professional development (CPD).

What do learners need to demonstrate?	Skills
Reflect and respond constructively to feedback provided throughout tasks and activities. Make suggestions for organisational improvements for commercial, productivity, and safety. Review feedback, identifying and implementing opportunities, personally and professionally within organisation.	EC2, EC6, MC2, MC9, MC10, DC2, DC3.

Outcome 6

6. Communicate mechatronic maintenance, installation, servicing and repair information, proposals, and solutions, producing, recording, and explaining relevant technical information.

6.1 **Record and amend** technical information, data, risks and issues.

Range:
Record and amend – diagrams, drawings, reports, results, maintenance logs, defect logs, statements, checklists.

What do learners need to demonstrate?	Skills
Record findings, data, risks and issues from the task accurately to support mechatronic maintenance, servicing and repair work. Create technical reports to communicate maintenance, installation and repair information. Make amendments and recommendations at relevant stages, within the limits of own authority and expertise. Use records, information, and data to inform improved practices, recommendations, and continuous improvement.	EC3, EC4, MC2, MC5, DC1, DC3, DC4, DC5, DC6.

6.2 Complete **handover procedures**.

Range:
Handover – complete work, incomplete work, modifications, faults, further investigation, suggested updates and improvements to maintenance schedules, demonstration of system functionality, confirmation (completion, responsibility, quality standards, specific requirements and outcomes, agreement), due date of next maintenance activity, technical documentation.
Procedures – communication methods (verbal, written, digital), de-brief, technical documentation (test results and certificates, calibration certificates, appropriate calculations, maintenance schedules, drawings and diagrams, software update information, maintenance records), signatures and date.

What do learners need to demonstrate?	Skills
Accurately communicate handover information following organisational procedures. The functionality of the system following maintenance, installation and repair activities. Communicate the reasons for non or partial functionality following maintenance, installation and repair activities, including any outstanding faults, defects or issues, and suggestions for future improvements. Follow and implement document version control for relevant paperwork and technical documentation where updates are made, including maintenance schedules and representations. Follow organisational handover procedures. Apply organisational policies (brief, meetings, documentation) to the handover procedures.	EC1, EC4, MC2, MC7, MC8, MC10, DC1, DC4.

6.3 Team-working, inter-personal skills and communication with **technical** and **non-technical audiences**.

Range:
Technical audiences – supervisors, engineers, colleagues, skilled technicians, apprentices.
Non-technical audiences – stakeholders, customers, clients, investors, colleagues (sales/service advisers, in house health and safety advisor).

What do learners need to demonstrate?	**Skills**
Communicate technical information as part of a team. Work as part of a team to obtain desired outcomes, maintaining positive and professional working relationships. Interact using inter-personal skills to contribute to team success. Adapt technical language appropriately to communicate with non-technical client/customers and colleagues.	EC1, EC2, EC3, EC4, EC5, EC6, DC3, DC4.

6.4 Communication methods, including **written**, **verbal** and **media**.

Range:
Written – note taking (lists, mind mapping/flow diagrams), writing style (business letter, memo writing, report styles and format, email), proofreading and amending text, use of logbook for planning and prioritising work schedules, graphical presentation techniques (graphs, charts and diagrams).
Verbal – speaking (with peers, supervisors, use of appropriate technical language, tone and manner), listening (use of paraphrasing and note taking to clarify meaning), impact and use of body language in verbal communication.
Media – inter/intranet (manuals, data, analytical software, manufacturers' catalogues), spreadsheets, databases, fault diagnostic software.

What do learners need to demonstrate?	**Skills**
Communicate information, requirements, expectations, plans, performance, and outcomes using different communication methods to convey and confirm maintenance, installation and repair information.	EC1, EC2, EC3, EC4, EC5, EC6, MC7, MC8, MC10, DC1, DC2, DC3, DC4, DC5.

Guidance for delivery

Opportunities for visits/engagement with local industry, employers and manufacturers should be provided throughout the delivery of the content within this specialism – where appropriate local employers could present details of recent projects including a variety of mechatronic maintenance activities, problems faced and how they were overcome. Learners work placement experiences could be presented to peers detailing where knowledge and skills within the content was seen in practice.

Formative assessment for the content may include oral Q&A, presentations to peers, observation of measuring activities etc. Reinforcement of learning can be encouraged through revisiting learning, group discussions, and the establishment of a peer support system within the cohort.

Providers must ensure content is delivered in line with current, up-to-date industry practice which will require;

- Provision of appropriate tools, equipment and test instrumentation for demonstration and practical training purposes
- Teaching coverage representing the type of equipment currently available and accepted for use in the UK industry

Suggested learning resources

Books

- W.Bolton, *Mechatronics: Electronic Control Systems in Mechanical and Electrical Engineering,* 7th edition, Pearson Education, 2018, ISBN-13 : 978-1292250977
- **C.W. de Silva,** *Mechatronics: A Foundation Course Hardcover,* 1st edition, CRC Press, 2010, ISBN-13 : 978-1420082111
- **P. Božek, Y. Nikitin, T. Krenicky,** *Diagnostics of Mechatronic Systems (Studies in Systems, Decision and Control),* 1st edition, Springer, 2021, ISBN-13 : 978-3030670542
- **B. Wilamowski, J. D. Irwin,** *Control and Mechatronics (The Electrical Engineering Handbook),* 1st edition, CRC Press, 2017, ISBN-13 : 978-1138073593
- N. J. Smith, *Engineering Project Management,* 3rd edition, Wiley-Blackwell Publishing, 2007, ISBN 9781405168021

Websites

- Science Direct Topics **https://www.sciencedirect.com/topics/engineering/mechatronics**
- Institute for apprenticeships and technical education **https://www.instituteforapprenticeships.org/**
- Institute of Engineering and Technology (IET) **https://electrical.theiet.org/bs-7671/**
- Health and Safety Executive **https://www.hse.gov.uk/electricity/**
- Fire & Security matters - **https://www.fsmatters.com/Home**
- International Society of Mechatronic Engineering **http://ismetek.org/**
- The institution of engineering and technology **https://communities.theiet.org/**

Scheme of Assessment – Maintenance engineering technologies: Mechatronic Occupational Specialism

The Maintenance engineering technologies: Mechatronic Occupational Specialism is assessed by one practical assignment. The duration of the assessment is 22 hours. Learners will be assessed against the following assessment themes:

- Health and safety
- Planning and preparation
- Systems and components
- Working with faults
- Reviewing and reporting

By completing the following tasks:

Task	Typical Knowledge and skills
Task 1 – Plan and prepare	Displays a breadth of knowledge and practical skills that enables them to plan and prepare for carrying out maintenance, installation and repair activities on mechatronic systems. Candidates will need to produce documents and complete risk assessments that clearly details how they plan to complete the maintenance, servicing, installation and repair activities to meet the requirements of the brief.
Task 2 – Perform maintenance	Applies a breadth of knowledge, understanding and practical skills that enables them to carry out maintenance, servicing, installation and repair activities on a variety of mechatronic systems and machines. The task is carried out in a clear and logical sequence. Works in a safe manner, able to carry out fault detection, diagnosis, isolation and resolution methods effectively Tools, materials and equipment are selected and used correctly.
Task 3 – Review and report	Displays a breadth of knowledge and understanding in the evaluation of their maintenance, installation and repair activities, recommending personal and organisational improvements to the process. Justifications for diagnosis, isolation and resolution methods used. Justifications for how peer review feedback was considered and implemented.
Task 4 - Handover	Displays breath of knowledge and skills in communicating technical information to a variety of audience types and how to complete handover procedures effectively. Candidates will need to demonstrate critical thinking skills when responding to peer review feedback.

The information provided in the following tables demonstrates to approved providers the weightings of each performance outcome and how each performance outcome is assessed.

Performance outcome and weighting (%)	***High level tasks*** *Provide specific instructions for candidates to provide evidence for and are the same for every version of the assessment*	**Assessment Theme**	***Typical evidence***
PO2 Analyse requirements, specifications and technical information to enable the delivery of successful maintenance, installation, servicing and repair of mechatronic technology, systems, and equipment. (10%)	T1- Plan and prepare	Planning and preparation	List of requirements and resources, and method statement.

PO3 Plan and prepare the maintenance, installation, servicing and repair of mechatronic technology, systems, and equipment, taking into account the specific requirements and context. (20%)	T1- Plan and prepare T2 – Perform	Health and safety Planning and preparation Systems and components Health and safety Planning and preparation Systems and components	List of requirements and resources, and method statement. Risk assessment. Work area preparation

PO4 Perform relevant maintenance, installation, servicing and repair of mechatronic technology, systems, and equipment, using appropriate techniques and procedures to achieve the required quality outcomes and solutions. (40%)	T1- Plan and prepare T2 – Perform T3 – Review and report T4 - Handover	Health and safety Health and safety Systems and components Working with faults Health and safety Systems and components Reviewing and reporting Health and safety Reviewing and reporting	List of requirements and resources, and method statement. Risk assessment. Completed test records, updated maintenance records and control documents Annotated method statement. Maintenance activities and work area re-instatement Technical report Technical report and maintenance schedule. Handover meeting.
PO5 Review and evaluate activities to help improve workplace systems and processes associated with maintenance, installation, servicing and repair of mechatronic technology, systems, and equipment, demonstrating commercial awareness and accountability. (20%)	T2 – Perform T3 – Review and report T4 - Handover	Systems and components Reviewing and reporting Health and safety Reports and information	Completed test records, updated maintenance records and control documents Annotated method statement. Technical report and maintenance schedule. Handover meeting.

PO6 Communicate mechatronic maintenance, installation, servicing and repair information, proposals and solutions, producing, recording and explaining relevant technical information. (10%)	T3 – Review and report T4 - Handover	Reports and information Reports and information	Technical report and maintenance schedule. Handover meeting

313 Maintenance engineering technologies: Electrical and electronic

Level:	3
GLH:	680
Assessment method:	Practical assignment

What is this specialism about?

The purpose of this specialism is for learners to know and understand electrical and electronic components and systems, and undertake key procedures for maintenance, installation and repair. Learners will have the opportunity to plan, perform and evaluate their work whilst utilising a range of materials, tools and equipment.

Learners will develop their knowledge and understanding of, and skills in:

- Knowledge of the construction and operation of standard power conversion systems
- Knowledge and application of component classification, numbering and referencing systems
- Knowledge of how components are removed, replaced and repaired as part of electrical and electronic systems
- Skills to plan and prepare electrical and electronic maintenance activities using analysis and evaluation
- Skills to select and use tools, equipment, machinery and technology safely and effectively to complete maintenance, installation and repair activities

Learners may be introduced to this specialism by asking themselves questions such as:

- How do electrical and electronic systems operate and function?
- What are the components used in electrical and electronic?
- How is maintenance, installation and repair to electrical and electronic systems carried out?

Underpinning knowledge outcomes

On completion of this specialism, learners will understand:

1. Maintenance engineering technology - electrical and electronic knowledge criteria

Performance outcomes

On completion of this specialism, learners will be able to:

2. Analyse requirements, specifications and technical information to enable the delivery of successful maintenance, installation, servicing and repair of electrical and electronic technology, systems and equipment.

3. Plan and prepare the maintenance, installation, servicing and repair of electrical and electronic technology, systems and equipment, taking into account the specific requirements and context.

4. Perform relevant maintenance, installation, servicing and repair of electrical and electronic technology, systems, and equipment, using appropriate techniques and procedures to achieve the required quality outcomes and solutions.

5. Review and evaluate activities to help improve workplace systems and processes associated with maintenance, installation, servicing and repair of electrical and electronic technology, systems, and equipment, demonstrating commercial awareness and accountability.

6. Communicate electrical and electronic maintenance, installation, servicing and repair information, proposals and solutions, producing, recording and explaining relevant technical information.

Completion of this specialism will give learners the opportunity to develop their Maths, English and Digital Skills. Details are presented at the end of the specification.

Specialism content

Outcome 1

Underpinning knowledge criteria for the performance outcomes

1.1 **Principles and techniques** for maintenance and repair.

Range:
Principles and techniques –

- removal and replacement activities – assembly and disassembly techniques, mechanical fixings/fastening
- conditions that determine repair – age of components, condition, costings, maintenance, replacement, repair, disposal, installation, downtime, productivity, quality, environmental
- maintenance and servicing strategies – reactive (condition-based monitoring, unplanned/emergency/post-fault), preventative (scheduled, planned, timed)
- disposal requirements – appropriate methods, documentation, legislation, sustainability and environmental considerations
- control documentation – schedules, specifications, method statements, authorisation, care and control procedures
- maintenance planning considerations – cost, production output, safety, skills and competency, equipment, job instructions)
- sources of information – data sheets, technical data, engineering drawings, exploded diagrams, planning sheets, workshop manuals, schematics
- types of tools – hand tools, power tools, test equipment, measuring instruments
- decommissioning considerations – down time, repair costs, environmental issues, productivity, quality, planning, lockouts, hazardous waste, risk assessments, permits, legislation.

What do learners need to learn?	**Skills**
Reasons of removal and replacement activities. Factors to be considered when determining either repair or replacement of assemblies or sub-assemblies. Types of documentation that are used to monitor, record and control maintenance activities and their typical contents. How to produce or amend appropriate technical documentation. The reasons for planning maintenance activities. Sources of information used in maintenance activities and how they are used. Types and purpose of tools and equipment used in maintenance activities. Disposal requirements appropriate to the waste and relevant legislation. Factors to be considered when decommissioning and their implications.	EC3, EC5, EC6, MC2, MC6, MC7, MC9, DC1, DC2, DC5.

Analyse requirements, specifications and technical information to enable the delivery of successful maintenance, installation, servicing and repair of electrical and electronic technology, systems and equipment (PO2)

1.2 **Construction** and **operation** of power conversion systems.

Range:
Construction – electrical devices, electro-mechanical devices, inverters, transformers, control panels, regulators, rectifiers, motor-generators, rotary convertors.
Operation – frequency control, diodes convert alternating current (AC) to direct current (DC) and back, DC-DC convertors, efficiencies of systems.

What do learners need to learn?	Skills
Functions and operation of power conversion systems, and the components required to construct them. How power conversion systems work to achieve an output. The working principles behind power conversion systems. Power flow analysis techniques and their applications.	EC5, MC2, MC3, MC4, MC6.

1.3 **Components** of electrical installations, including **failure modes** and **protection methods**.

Components – passive components (resistors, capacitors (polarised, non-polarised, supercapacitor), inductors, transformers), active components (voltage and current sources), generators, transistors (bipolar, field effect), operational amplifiers, diodes (P-N junction, Zener, photodiodes, light emitting diodes (LED)), cables (single core, multicore, armoured, fire resistant, flexible, non-flexible), wiring (single strand, multi strand), residual current device (RCD), photovoltaic cells, electrical power outlets (three pin plug outlets, USB charging points, indoor, outdoor).
Failure modes – equipment failure (human error, environmental conditions), circuit faults (symmetrical and unsymmetrical faults, short circuit and open circuit connections, high resistance connections, connections to earth), supply faults (components out of specification, intermittent, fault and tolerance testing, power supply spikes and drops), digital faults (input, output, logic), interference.
Protection methods – relays, earthing, bonding, fuses, immobilisers, circuit breakers, isolators, ingress protection rating (IP).

What do learners need to learn?	Skills
Function and operational characteristics of electrical components, cabling and wiring. Identify common failure modes and protection methods. The advantages and limitations of protection methods used in electrical and electronic engineering. How to interpret and apply the latest edition IET wiring regulations HSE directive.	MC2, MC3, MC4, MC6, DC1.

1.4 **Properties** and applications of **electrical** and **electronic systems, circuits** and **components**

Range:
Properties – voltage, current, resistance, impedance, power.
Systems – electrical, electronic, electro-mechanical, circuit types, amplifiers, power supplies, DC networks.
Circuits – series, parallel, series-parallel, closed, open circuits, power, timer, latching, auxiliary, pulse generation circuits, integrated circuits (IC).
Electrical components – switches (single pole single throw (SPST), single pole double throw (SPDT), double pole single throw (DPST), double pole double throw (DPDT)), diodes (P-N junction, Zener), rectifiers, capacitors, RCD, resistors, inductors, relays, transformers, potentiometers.
Electronic components – transistors (bipolar (NPN, PNP), field effect (MOSFET, JFET)), thyristors, operational amplifiers, microcontrollers, logic gates (AND, OR, NOT, NAND, NOR, XOR), counter, timer.

What do learners need to learn?	Skills
The nature and behaviour of electricity in systems. The properties and characteristics of electrical and electronic systems, and their components. Different types of electrical circuits (series and parallel) and their applications in electrical and electronic engineering. The characteristics of electronic components used in equipment, including basic circuits, using electronic equipment and their uses. The application of different types of systems and their components. Application of electrical and electronic laws and theorems.	MC3, MC4, MC6, DC1, DC6.

1.5 **Drive devices**, their purposes, **parameters** and applications.

Range:
Drive devices – electrical motors, modulators, control units, sensing units, AC and DC units.
Parameters – inputs, process and outputs, hardware specifications, peripherals.

What do learners need to learn?	Skills
The purpose and applications of drive devices and motors. The advantages and limitations of drive units. The purpose and outcomes of drive device parameters and how they contribute to the operation of the system.	EC5, MC2, MC3, MC4, MC6, DC1.

1.6 **Sensing** and **measurement techniques** and **technologies.**

Range:
Sensing – temperature, infrared, speed/position, pressure, displacement, proximity, force, light, linear dimensions and clearances, and liquid flow.
Sensing technologies – inductive, capacitive, hall effect, operational amplifiers (seismic sensors), Wheatstone bridge, filtering, transformers, variable resistors, piezoelectric transducers.
Measurement techniques and technologies – multimeters, oscilloscopes, signal and function generators, insulation resistance tester, data logging, logic probes, frequency meter.

What do learners need to learn?	Skills
The purposes and applications of electronic systems that measure performance.	MC2, MC3, MC4, MC6,

The relative benefits, functions and limitations of sensing and measurement techniques and technologies. How sensing and measurement technologies are used to measure electrical and electronic parameters and signals.	DC1.

1.7 **Component classification**, **numbering** and **referencing systems**.

Range:
Component classification – passive, active.
Numbering – part numbers, identification numbers, material lists, labelling, specifications.
Referencing systems – wiring identification, identification codes and technical data, standard reference designations for electrical and electronic parts and equipment (IEEE standards), manufacturers data sheets, manufacturers safety specifications, technical manuals, colour codes, tags, component numbering, QR codes, barcodes, CE marking, schematic diagrams, wiring diagrams, IET wiring regulations (British Standard 7671), BS3939, EMC Directive, BS, IEC, EN and ISO Standards.

What do learners need to learn?	**Skills**
The purposes and applications of component classification, numbering and referencing systems. How to interpret current IET, BS, IEC, EN and ISO standards related to electrical and electronic systems including classification, numbering and referencing. Classification, numbering and referencing related to engineering documents.	MC2, MC3, MC4, MC6, DC1, DC5.

1.8 Key principles of **energy storage** and **transfer**.

Range:
Energy storage – current, electricity, static electricity, heat (conduction, convection, radiation), kinetic, batteries, capacitors, compressed air, hydroelectricity, flywheel, pressurised tanks.
Energy transfer – methods of energy transfer (mechanical, electrical, radiation, heating) energy efficiencies, conduction, circuits.

What do learners need to learn?	**Skills**
Characteristics and methods of energy storage and transfer. Application of energy storage and transfer methods. How energy forms are converted to enable storage.	MC4, MC6.

Perform relevant maintenance, installation, servicing and repair of electrical and electronic technology, systems, and equipment, using appropriate techniques and procedures to achieve the required quality outcomes and solutions (PO4)

1.9 Hand and power **tools,** and **equipment.**

Range:
Tools – drills, pliers, wire cutters, wire strippers, de-soldering tool, spanners, screwdrivers, torx, files, hammers, Allen keys, crimping tool, soldering iron, potentiometer trimmer.
Equipment – test equipment (multimeters, clamp meters, electronic control unit (ECU), diagnostic testers), measuring tools (micrometers, Vernier callipers), oscilloscopes, signal generators, logic probes, data logger.

What do learners need to learn?	Skills
How to check the physical condition of tools prior to use. The suitable applications and limitations of the identified equipment. How to maintain tools and equipment and use safely, following all safety regulations relating to use. Risks and consequences of using non-authorised tools and equipment. How to safely operate equipment, machinery and technology. How to follow relevant guidelines and instructions, limits of own authority and expertise, and seek advice and guidance, where necessary.	EC5, MC1, MC2, MC3, MC4, DC1, DC4.

1.10 **Effects** of **environmental conditions** on materials, components, wiring, and equipment.

Range:
Effects – failure modes, working condition, false readings, degradation, corrosion, ingress, egress, leakages, system errors, blockages, electrical faults, mechanical faults, debris, cracking, brittle, disintegration, cleanliness, clarity.
Environmental conditions – humidity, moisture, temperature, pressure, heat, pollution, dirt, debris, radiation, chemicals.

What do learners need to learn?	Skills
How environmental conditions can affect materials components, wiring and equipment, and their potential effects. Characteristics relating to material quality and condition. How materials degrade and fail, including monitoring, maintaining and preventative techniques. Appropriate methods of maintenance, management, storage, preservation and prevention for materials, tools and equipment.	EC5, MC1, MC2, DC1, DC4, DC6.

1.11 Electro-static sensitive devices **(ESDs)** and components, and **measures of protection**.

Range:
ESDs – metal oxide semiconductor field effect transistors (MOSFETs), complementary metal oxide semiconductor (CMOS) integrated circuits, micro-controllers.
Measures of protection – ESD-safe bags and foam, grounding mats, straps and tools, anti-static garments, wrist straps.

What do learners need to learn?	Skills
Static electricity and the effect it has on semi-conductors. The importance of anti-static practices during transport, storage, maintenance, servicing, and repair work, and the implications of not following these practices.	MC2, MC6, DC1, DC6.

1.12 **Installation**, **configuration**, and **integration** of electrical and electronic engineering systems.

Range:
Installation – client requirements, regulation requirements, commissioning, isolation, manufacturers specifications, tools and equipment.
Configuration – setting parameters, calibration, testing, handover, operating systems, specifications, tools and equipment.
Integration – combining of systems, networking, functions, designs, planning, processes, tools and equipment.

What do learners need to learn?	Skills
Application of installation techniques, configuration and integration using the correct tools and following regulations. Requirements and procedures for installation and configuration of electrical and electronic systems. Installation and integration of wireless technologies and systems. How to safely use tools, equipment and technology to complete maintenance, installation and repair requirements. How to follow relevant guidelines and instructions, limits of own authority and expertise, and seek advice and guidance, where necessary.	EC5, MC1, MC2, MC3, MC4, MC5, MC7, DC1, DC4, DC6.

1.13 **Fault detection**, **diagnosis**, **resolution** and **isolation methods.**

Range:
Fault detection – equipment, self-diagnostic, unit substitution, input output, half split technique, end to end, top-down technique, component isolation, tools and equipment.
Fault diagnosis – sensory checks, collection of fault data, self-diagnosis, inspection, material testing, tools and equipment.
Resolution methods – replace, repair, adjust, modification.
Isolation methods – supply, testing for dead, keys, lock out, electrical, temperature, pressure, RCD, tools and equipment.

What do learners need to learn?	Skills
Identifying faults utilising fault detection and diagnosis methods. Material testing methods and techniques. How to safely use tools, equipment and technology to detect and diagnose faults within assemblies and sub-assemblies.	EC5, MC1, MC2, MC3, MC5, DC1, DC2, DC4,

How to use resolution methods based on the fault diagnosis. Identify different isolation methods and carry out safe and effective isolation. The advantages and limitations of detection methods and isolation systems. How to interpret and comply with relevant legislation. How to apply safe isolation methods to complete resolution and rectification methods. How to follow relevant guidelines and instructions, limits of own authority and expertise, and seek advice and guidance, where necessary.	DC6.

1.14 Techniques for **disassembly, modification and re-assembly.**

Range:
Disassembly – powering down, isolation, removal of housing and components, disposal requirements, documentation, tools and equipment.
Modification – changing of parameters, wiring, adjustments, process change, tools and equipment, re-calibration, reporting and recording, housing and components.
Re-assembly – structures, removal, powering up, documentation, QR codes, barcodes, attachments, fixings, tightening techniques, tools and equipment.

What do learners need to learn?	**Skills**
Methods and procedures for the assembly and disassembly according to guidance and regulations. How to safely use tools, equipment and technology to disassembly, modify and re-assemble mechanical assemblies and sub-assemblies. Tightening techniques for different operations. The application and recording of different modification techniques. How to follow relevant guidelines and instructions, limits of own authority and expertise, and seek advice and guidance, where necessary.	EC5, MC1, MC2, MC3, MC4, MC5, MC7, DC1, DC4, DC6.

1.15 **Joining techniques**.

Range:
Joining techniques – permanent, semi-permanent, soldering, crimping, use of block connectors, interference fit.

What do learners need to learn?	**Skills**
The different methods and applications of joining techniques. How joining techniques ensure electrical and electronic systems are effective.	EC5, MC1, MC2, MC3, MC5.

Review and evaluate activities to help improve workplace systems and processes associated with maintenance, installation, servicing and repair of electrical and electronic technology, systems, and equipment, demonstrating commercial awareness and accountability (PO5)

1.16 **Quality inspection**, **testing and recording methods**.

Range:
Quality inspection and testing methods – policies, procedures, guidance, organisational systems and requirements, sensory checks, checklists, maintenance instructions, data, reports, measurement, analysis of systems, communication, prior maintenance history, maintenance requirements, preventative measures.
Recording methods – maintenance logs, defect logs, reports, statements, checklists, equipment, digital technologies, amending documentation.

What do learners need to learn?	Skills
The purpose of quality inspection, testing and recording. Factors that can affect quality in electrical and electronic engineering and quality assurance processes. How variations and defects in engineering products and components are managed. Application of methods and techniques used within quality inspection and testing. The importance of using the correct quality inspection and testing techniques. The impact of inadequate quality inspection and testing. How to complete and record quality processes as part of quality control, assurance and improvement.	EC3, EC4, EC5, EC6, MC2, MC5, MC6, MC10, DC1, DC2, DC4.

Communicate electrical and electronic maintenance, installation, servicing and repair information, proposals and solutions, producing, recording and explaining relevant technical information (PO6)

1.17 **Communicating technical information and data**.

Range:
Communicating – record, manage, store, amend, upload data, collaborative technologies (shared drives, email, conferencing, software and programs, forums).
Technical information and data – test data, test results, maintenance results and findings, fault information, inspection sheets, maintenance logs, repair methods.

What do learners need to learn?	Skills
How to communicate information effectively in written and verbal methods. The importance of technical documentation for communication. How to create technical reports for maintenance, installation and repair activities. How collaborative technology is used to communicate technical information and data. Current legislation including GDPR and organisational procedures that are used to manage data and increase confidentiality of sensitive information.	EC1, EC2, EC3, EC4, EC5, MC5, MC7, MC10, DC1, DC2, DC3, DC4, DC5.

1.18 Digital, information and communication technology (**ICT**).

Range:
ICT – data systems, recording systems, electronic document and management systems.

What do learners need to learn?	**Skills**
How technology and systems are used to manage engineering data and documentation. Application of software and ICT systems and techniques to record, manage, store and amend engineering information. Advantages and limitations of using ICT to record information.	EC4, EC5, MC5, MC10, DC1, DC3, DC4, DC5.

Practical criteria for performance outcomes

Outcome 2

2. Analyse require complaint details; maintenance records and schedules) to develop an understanding of issues and appropriate methods for resolution.

2.1 Confirm the **type**, **scope** and **requirements** of the activity, task or problem.

Range:
Type – installation, re-installation, position, configuration, assembly, disassembly, modification**,** fault finding (electrical, electronic, data, system, operational, temperature), resolution methods, preventative measures, repairs, upgrade, downgrade.
Scope – tasks, features, costing, goals, deliverables, functions, requirements, outcomes, end product, depth, detail, time scales, sensory checks, maintenance records and schedules, agreed processes, evidence and data gathering, specifications, repair information, wiring diagrams, recall instructions.
Requirements – expectations and desired output, performance requirements, client requirements, access, reliability, integration of information, health and safety legislation and regulations.

What do learners need to demonstrate?	**Skills**
Gather, analyse and interpret technical information, data and evidence to confirm type, scope and requirements for the task, considering performance, quality and compliance. Use information to identify and confirm issues, problems, faults and areas for investigations. Analyse and identify likely causes, agreed processes, methods, expectations and outcomes. Interrogate technical documentation considering the accuracy, relevance, currency and completion to understand issues and appropriate methods for resolution or further investigation. Use and respond effectively to specifications, repair information, observed evidence, recall instructions, maintenance tables and technical bulletins. Interpret and confirm all health and safety requirements of maintenance, installation and repair activities.	EC4, EC5, EC6, MC2, MC3, MC5, MC6, MC7, MC9, MC10, DC1, DC4.

2.2 Evaluate the **condition**, quality and **performance** of **components**, systems, **materials** and **resources**.

Range:
Condition – working condition, serviceability (degradation, deterioration, damage, corrosion, disintegration), safety.
Performance – efficiency, accuracy, effectiveness, tolerance, outputs, sustainability.
Components – electrical, electronic, electro-mechanical, mechanical.
Materials – non-ferrous, ferrous, thermosetting, thermoplastics, composites, smart materials.
Resources – maintenance instructions, maintenance manuals, data sheets, material safety data sheets (MSDS), recording forms, maintenance logs, test certificates, work permits, health and safety regulations, environmental requirements, organisational procedures.

What do learners need to demonstrate?	**Skills**
Evaluate condition of components to ensure quality standards and requirements are met.	EC4, EC5,

Make effective decisions based on observation and information gathered to proceed with a task. Use diagnostic information and other evidence to determine electrical and electronic system and component serviceability and feasibility for maintenance and repair activities.	MC2, MC5, MC6, MC10, DC4.

2.3 Interpret electrical and electronic **representations**.

Range:
Representations – manuals, specifications, instructions, diagrams (circuit, schematic, wiring, block), drawings, symbols, annotations, conventions, standards, reports, results, statements.

What do learners need to demonstrate?	**Skills**
Interpret representations to communicate and confirm details and requirements of the electrical and electronic systems to support maintenance, installation and repair activities.	EC3, EC4, EC5, MC5, MC6, MC7, MC10, DC1, DC4.

Outcome 3

3. Plan and prepare the maintenance, installation, servicing and repair of electrical and electronic technology, systems and equipment, taking into account the specific requirements and context.

3.1. **Plan** and prepare **processes**, **resources**, **scope**, **technology, tools and equipment** to complete client expectations.

Range:
Plan – method statements, Standard Operating Procedures (SOPs), risk assessments, preparatory checks.
Processes – organisational, regulatory, maintenance, rectification, reporting, recording.
Resources – maintenance instructions, maintenance manuals, data sheets, MSDS, recording forms, maintenance logs, test certificates, work permits, health and safety regulations, environmental requirements, organisational procedures.
Scope – tasks, features, costing, goals, deliverables, functions, requirements, outcomes, end product, depth, detail, time scales, sensory checks, maintenance records and schedules, agreed processes, evidence and data gathering, specifications, repair information, wiring diagrams, recall instructions.
Technology, tools and equipment – drills, insulated tools (wire cutters, wire strippers, pliers, screwdrivers), torx, soldering iron, de-soldering tool, spanners, files, hammers, Allen keys, crimping tool, test equipment (clamp meters, electronic control unit (ECU), diagnostic testers), oscilloscopes, signal generators, logic probes, data logger, multimeters, wire gauge.

What do learners need to demonstrate?	Skills
Produce plans using information gathered to meet client requirements, including human resources and service impact, following SOPs. Confirm technology, tools and equipment availability to complete client requirements with consideration of prior maintenance history. Identify components and parts that are required. Review, confirm and record stock levels, ordering processes, and lead-in times to complete the required task or activity. Evaluate and plan for wastage, disposal, recyclability and sustainability in maintenance, service and repair tasks and activities.	EC1, EC2, EC3, EC4, EC5, EC6, MC2, MC3, MC4, MC7, MC8, MC9, DC5.

3.2 **Risk assessment.**

Range:
Risk assessment – assessments of hazards (health and safety considerations, pneumatics, hydraulics, mechanical, electro-mechanical, temperature, abrasive wheels, hazardous substances, pressurised fluids, equipment, moving under suspended loads, risk of slips, trips and falls, working in restricted spaces), evaluation of risk (severity, impact), control measures (permits to work, SOPs, PPE), documentation.

What do learners need to demonstrate?	Skills
Complete risk assessments and implement control measures for maintenance, installation and repair activities, communicating risks according to policies and procedures. Complete risk management for maintenance and repair activities of electrical and electronic systems. Confirm processes, outcomes and mitigations used to reduce potential risks and issues.	EC1, EC2, EC3, EC4, EC5, DC1, DC2, DC4.

3.3 Quality, accuracy and completeness of **information** and **resources**.

Range:
Information – identification codes and technical data, manufacturers data sheets, manufacturers safety specifications, MSDS, regulations, colour codes, component numbering, schematics, material lists, sensory checks, fault data, checklists, reports, measurements, test results, inspection sheets, repair method statements (issue dates, amendments).
Resources – policies, procedures, regulations, guidance, second line verifications, organisational systems and requirements, maintenance logs, defect logs, reports, equipment, data systems, electronic document and management systems.

What do learners need to demonstrate?	Skills
Application of information and resources to ensure components are correct, complete, free of fault, and conform to specifications and dimensions. Application of calibration requirements of components and equipment prior to commencing, procedures for out-of-date calibrations and electrical safety checks.	EC4, EC5, MC2, MC3, MC4, MC6, MC7, MC8, MC9, DC1, DC2, DC4, DC5, DC6.

3.4 **Preparatory checks** for compliance, quality and functionality.

Range:
Preparatory checks – tools, equipment, calibration, isolation requirements, work area, sensory.

What do learners need to demonstrate?	Skills
Carry out preparatory checks on materials, resources, tools, equipment, and other technologies. The advantages and limitations of preparatory checks for compliance, quality and functionality. Application of safe isolation and calibration checks on tools and equipment.	EC5, MC2, DC1, DC6.

3.5 **Plan and prepare** work areas for electrical and electronic engineering processes.

Range:
Plan and prepare – tools, equipment, materials, components, technical data, diagrams, schematics, regulations, workflow process, environment.

What do learners need to demonstrate?	Skills
Plan and prepare the work area for electrical and electronic engineering processes. Application of adjustments to tools and equipment according to specifications and parameters in preparation for the task to be completed.	EC5, EC6, MC2, DC1, DC6.

Outcome 4

4. Perform relevant maintenance, installation, servicing and repair of electrical and electronic technology, systems, and equipment, using appropriate techniques and procedures to achieve the required quality outcomes and solutions.

4.1 **Maintain**, install and repair electrical and electronic systems, equipment, and components.

Range:
Maintain – total preventative, reactive, planned (timed, annual, bi-annual), corrective, condition-based monitoring.

What do learners need to demonstrate?	**Skills**
Complete maintenance, installation and repair activities of electrical and electronic systems, equipment and components within agreed specifications, timeframes and standards of quality. Safely operate equipment, machinery and technology when completing maintenance, installation and repair tasks. Follow relevant guidelines and instructions, and seek advice and guidance, where necessary. Responsibilities of working individually and collaboratively to meet task, client and organisational standards, policies and expectations, in accordance with working practices. Application of electrical and electronic laws and theorems in maintenance, installation and repair activities Follow and comply with all health and safety requirements of maintenance, installation and repair activities.	EC5, EC6. MC1, MC2, MC3, MC4, MC5, MC7, DC1, DC4, DC6.

4.2 **Diagnostic** and measurement techniques, **tools and equipment**.

Range:
Diagnostic tools and equipment – test equipment (clamp meters, electronic control unit (ECU), diagnostic testers), measuring tools, oscilloscopes, signal generators, logic probes, data logger, multimeters.

What do learners need to demonstrate?	**Skills**
Follow manufacturer's instructions when using diagnostic and measuring equipment. Application of diagnostic and measurement techniques, tools and equipment to obtain accurate information and results on performance, condition and compliance. Use fault detection techniques, tools and equipment to identify and locate faults and their causes in electrical and electronic devices, systems and equipment. Interpret and evaluate built in tests and self-diagnostic results.	EC5, EC6, MC1, MC2, MC3, MC4, MC5, MC6, MC7, DC1, DC4, DC6.

4.3 **Reactive** and **preventative** maintenance procedures.

Range:
Reactive – control monitoring, condition-based monitoring, unplanned, emergency, post-fault.
Preventative – scheduled, planned, timed.

What do learners need to demonstrate?	**Skills**
Determine schedule of tasks (remove, replace, repair) from diagnostic and measurement findings. Follow procedures to complete reactive maintenance tasks. Complete preventative maintenance procedures to reduce further failure or downtime, including recommending amendments to the maintenance schedule where appropriate.	EC5, MC1, MC2, MC3, MC4, MC5, MC6, DC4.

4.4 **Disassemble**, **assemble** and **install** electrical and electronic components, devices and systems.

Range:
Disassemble – powering down, isolation, removal of components, functional safety (safety instrumented systems (SIS), safety integrity level (SIL)), disposal requirements, tools and equipment, documentation.
Assemble – structures, removal, powering up, documentation, attachments, fixings, tightening techniques, tools and equipment.
Install – client requirements, regulation requirements, commissioning, isolation, manufacturers specifications, replacement parts, 1st fix, 2nd fix of components, functional safety checks.

What do learners need to demonstrate?	**Skills**
Follow all relevant processes when assembling and disassembling components, devices and systems. Application of requirements and specifications to ensure correct assembly and disassembly, considering technical data and instructions. Accurately position, install, calibrate and configure devices and equipment to agreed requirements and specifications. Consider and follow regulatory requirements throughout.	EC5, MC1, MC2, MC3, MC4, MC5, MC7, DC1, DC4, DC6.

4.5 **Commissioning** and **return to service** of electrical and electronic devices, systems and technology.

Range:
Commissioning – design, construct, test, integration, set parameters, check tolerances, offload testing, live testing, test before first use, confirm performance and accuracy, alterations, wiring.
Return to service – power up, confirm functionality, reliability, serviceability, handover.

What do learners need to demonstrate?	**Skills**
Commission and return to service electrical and electronic devices and systems to fully operational condition. Application and purpose of testing the system is operating correctly, adjusting where necessary. Carry out commissioning procedures safely and checking the safety of electrical and electronic devices and systems.	EC5, EC6, MC1, MC2, MC3, MC5, DC1, DC4, DC6.

4.6 Planned maintenance, **servicing** and repair **tasks**.

Range:
Servicing – component and circuit replacement, calibration, condition checks, functional checks.
Tasks – wiring, crimping, measuring, cutting, soldering, stripping, removing and replacing circuits.

What do learners need to demonstrate?	**Skills**
Perform planned maintenance, servicing and repair tasks to electrical and electronic systems according to schedules. Review and analyse outputs, data and readings.	EC5, MC1, MC2, MC3, MC5, MC7, DC3, DC4.

4.7 **Re-instate** work areas.

Range:
Re-instate – equipment is functioning to specification, work area is back to original condition, returning of tools and equipment, correct disposal requirements followed, housekeeping.

What do learners need to demonstrate?	**Skills**
Reinstate work areas back to original condition upon completion of tasks. Manage the area ensuring the area is left in safe condition. Check and return all tools and equipment back to storage facilities. Follow disposal requirements appropriate to the waste and relevant legislation.	EC5, MC2.

Outcome 5

5. Review and evaluate activities to help improve workplace systems and processes associated with maintenance, installation, servicing and repair of electrical and electronic technology, systems, and equipment, demonstrating commercial awareness and accountability.

5.1 **Safe systems of work** and legal compliance.

Range:
Safe systems of work – procedures, safe working practices, risk assessment and management.

What do learners need to demonstrate?	Skills
Anticipate and identify potential risks and actual risks. Apply safe systems of work, following policies and procedures relevant to the task. Complete documentation of activities and reflect on outcomes. Follow and comply with safe working practices and legal compliance.	EC4, EC5, EC6, MC1, MC2, MC4, MC5, MC6, MC10, DC1, DC2, DC4.

5.2 Work area **practices**.

Range:
Practices – safe working, guidance, regulatory requirements, organisational requirements, scope, responsibility, documentation, reporting procedures.

What do learners need to demonstrate?	Skills
Monitor working area practices to prevent, resolve, manage, and mitigate issues arising during tasks. Identify potential issues, following correct procedures to report and record. Implement practices to manage stock levels, materials and availability of resources.	EC4, EC5, MC1, MC2, MC5, MC6, MC7, MC10, DC4, DC5.

5.3 Deal promptly and effectively with **issues**.

Issues – health and safety, age related use/wear, not meeting required standards or regulations, decommissioning, inappropriate use/lack of training, time constraints, cost implications, documentation discrepancies, tool and equipment failure.

What do learners need to demonstrate?	Skills
Deal with issues encountered throughout engineering tasks in a timely manner. Apply problem solving techniques to resolve issues within the limits of own authority and expertise. Follow reporting procedures to ensure issues and problems are communicated. Report and escalate issues and problems where falling outside the limits of own authority.	EC3, EC4, EC5, EC6, MC2, MC6, MC9, MC10, DC1.

5.4 Carry out **quality monitoring** and **assurance checks** to review processes.

Range:
Quality monitoring – inspections, reviewing (self, peer to peer, supervisory), amending, supervisory checks, checking of quality.
Assurance checks – checking and validating reliability and durability, post-repair performance and functional tests.

What do learners need to demonstrate?	**Skills**
Conduct quality monitoring and assurance checks as part of a team's electrical and electronic maintenance, servicing and repair operations and processes. Review efficiency of processes, practices and outcomes to improve quality. Consistently check validity, accuracy and relevance of documentation. Communicate technical information, advice and suggestions for improvements. Suggest strategies to increase efficiency of quality monitoring processes, with consideration of performance and potential improvements.	EC4, EC5, EC6, MC4, MC5, MC6, MC10, DC1, DC2, DC3, DC4.

5.5 Make positive **contributions** for maintenance and operations whilst working effectively with others.

Range:
Contributions – communicate solutions, improvements, ideas, findings, designs, technical information, recommendations, research, facts, methods, operational changes, maintenance requirements.

What do learners need to demonstrate?	**Skills**
Recommend improvements, methods and other technical information as part of a team. Contribute effectively to maintenance, operations and team discussions. Working effectively with others and willing to assist where necessary and appropriate.	EC2, EC3, EC4, EC5, EC6, MC2, MC9, MC10.

5.6 Respond constructively to **feedback** and identify opportunities for personal and **organisational** improvement.

Range:
Feedback- reviews (self, peer to peer, supervisory), appraisals, reports, progress reviews, evaluation, witness statements, observational records.
Organisational – commercial, productivity, safety, growth, activities, services, quality, technology, continuing professional development (CPD).

What do learners need to demonstrate?	**Skills**
Reflect and respond constructively to feedback provided throughout tasks and activities. Make suggestions for organisational improvement. Review feedback, identifying and implementing opportunities, personally and within the organisation.	EC2, EC6, MC2, MC9, MC10, DC2, DC3.

Outcome 6

6. Communicate electrical and electronic maintenance, installation, servicing and repair information, proposals and solutions, producing, recording and explaining relevant technical information.

6.1 **Record and amend** technical information, data, risks and issues.

Range:
Record and amend – diagrams, drawings, reports, results, maintenance logs, defect logs, statements, checklists.

What do learners need to demonstrate?	Skills
Accurately record findings, data, risks and issues from tasks to support electrical and electronic maintenance, servicing and repair work. Create technical reports to communicate maintenance, installation and repair information. Make amendments and recommendations at relevant stages, within the limits of own authority. Use records, information, and data to inform improved practices, recommendations, and continuous improvement.	EC3, EC4, MC2, MC5, DC1, DC3, DC4, DC5, DC6.

6.2 Complete **handover procedures**.

Range:
Handover – complete work, incomplete work, modifications, faults, further investigation, suggested updates and improvements to maintenance schedules, demonstration of system functionality, confirmation (completion, responsibility, quality standards, specific requirements and outcomes, agreement), due date of next maintenance activity, technical documentation.
Procedures – communication methods (verbal, written, digital), de-brief, technical documentation (test results and certificates, calibration certificates, appropriate calculations, maintenance schedules, drawings and diagrams, software update information, maintenance records), signatures and date.

What do learners need to demonstrate?	Skills
Accurately communicate handover information following organisational procedures The functionality of the system following maintenance, installation and repair activities. Communicate the reasons for non or partial functionality following maintenance, installation and repair activities, including any outstanding faults, defects or issues, and suggestions for future improvements. Follow and implement document version control for relevant paperwork and technical documentation where updates are made, including maintenance schedules and representations. Follow organisational handover procedures. Apply organisational policies (brief, meetings, documentation) to the handover procedures.	EC1, EC4, MC2, MC7, MC8, MC10, DC1, DC4.

6.3 Team-working, inter-personal skills and communication with **technical** and **non-technical audiences**.

Range:
Technical audiences – supervisors, engineers, colleagues, skilled technicians, apprentices.
Non-technical audiences – stakeholders, customers, clients, investors, colleagues (sales/service advisers, in house health and safety advisor).

What do learners need to demonstrate?	**Skills**
Communicate technical information as part of a team. Work as part of a team to obtain desired outcomes, maintaining positive and professional working relationships. Interact using inter-personal skills to contribute to team success. Adapt technical language appropriately to communicate with non-technical client/customers and colleagues.	EC1, EC2, EC3, EC4, EC5, EC6, DC3, DC4.

6.4 Communication methods, including **written**, **verbal** and **media**.

Range:
Written – note taking (lists, mind mapping/flow diagrams), writing style (business letter, memo writing, report styles and format, email), proofreading and amending text, use of logbook for planning and prioritising work schedules, graphical presentation techniques (graphs, charts and diagrams).
Verbal – speaking (with peers, supervisors, use of appropriate technical language, tone and manner), listening (use of paraphrasing and note taking to clarify meaning), impact and use of body language in verbal communication.
Media – inter/intranet (manuals, data, analytical software, manufacturers' catalogues), spreadsheets, databases, fault diagnostic software.

What do learners need to demonstrate?	**Skills**
Communicate information, requirements, expectations, plans, performance, and outcomes using different communication methods to convey and confirm maintenance, installation and repair information.	EC1, EC2, EC3, EC4, EC5, EC6, MC7, MC8, MC10, DC1, DC2, DC3, DC4, DC5.

Guidance for delivery

Opportunities for visits/engagement with local industry, employers and manufacturers should be provided throughout the delivery of the content within this specialism – where appropriate local employers could present details of recent projects including a variety of electrical and electronic engineering maintenance activities, problems faced and how they were overcome. Learners work placement experiences could be presented to peers detailing where knowledge and skills within the content was seen in practice.

Formative assessment for the content may include oral Q&A, presentations to peers, observation of measuring activities etc. Reinforcement of learning can be encouraged through revisiting learning, group discussions, and the establishment of a peer support system within the cohort.

Providers must ensure content is delivered in line with current, up-to-date industry practice which will require;

- Provision of appropriate tools, equipment and test instrumentation for demonstration and practical training purposes
- Teaching coverage representing the type of equipment currently available and accepted for use in the UK industry

Suggested learning resources

Books

- L.S. Bobrow, *Fundamentals of Electrical Engineering*. 2nd edition, Oxford University Press, 1996, ISBN 978-0195105094
- WK Chen, *The Electrical Engineering Handbook*. 1st edition, Academic Press. 2004, ISBN 978-0080477480.
- N. J. Smith, *Engineering Project Management,* 3rd edition, Wiley-Blackwell Publishing, 2007, ISBN 9781405168021

Websites

- Institution of Engineering and Technology www.theiet.org
- Health and Safety Executive www.hse.gov.uk

Scheme of Assessment – Maintenance engineering technologies: Electrical and Electronic

The Maintenance engineering technologies: Electrical and Electronic is assessed by one practical assignment. The duration of the assessment is 22 hours. Learners will be assessed against the following assessment themes:

- Health and safety
- Planning and preparation
- Systems and components
- Working with faults
- Reviewing and reporting

By completing the following tasks:

Task	Typical Knowledge and skills
Task 1 – Plan and prepare	Displays a breadth of knowledge and practical skills that enables them to plan and prepare for carrying out maintenance, installation and repair activities on electrical and electronic systems. Candidates will need to produce documents and complete risk assessments that clearly details how they plan to complete the maintenance, servicing, installation and repair activities to meet the requirements of the with the brief.
Task 2 – Perform maintenance	Applies a breadth of knowledge, understanding and practical skills that enables them to carry out maintenance, servicing, installation and repair activities on a variety of electrical and electronic systems. The task is carried out in a clear and logical sequence. Works in a safe manner, able to carry out fault detection, diagnosis, isolation and resolution methods effectively Tools, materials and equipment are selected and used correctly.
Task 3 – Review and report	Displays a breadth of knowledge and understanding in the evaluation of their maintenance, installation and repair activities, recommending personal and organisational improvements to the process. Justifications for diagnosis, isolation and resolution methods used. Justifications for how peer review feedback was considered and implemented.
Task 4 - Handover	Displays breath of knowledge and skills in communicating technical information to a variety of audience types and how to complete handover procedures effectively. Candidates will need to demonstrate critical thinking skills when responding to peer review feedback.

The information provided in the following tables demonstrates to approved providers the weightings of each performance outcome and how each performance outcome is assessed.

Performance outcome and weighting (%)	***High level tasks*** *Provide specific instructions for candidates to provide evidence for and are the same for every version of the assessment*	**Assessment Theme**	***Typical evidence***
PO2 Analyse requirements, specifications and technical information to enable the delivery of successful maintenance, installation, servicing and repair of electrical and electronic technology, systems and equipment. (10%)	T1- Plan and prepare	Planning and preparation	List of requirements and resources, and method statement.

PO3 Plan and prepare the maintenance, installation, servicing and repair of electrical and electronic technology, systems and equipment, taking into account the specific requirements and context. (20%)	T1- Plan and prepare T2 – Perform	Health and safety Planning and preparation Systems and components Health and safety Planning and preparation Systems and components	List of requirements and resources, and method statement. Risk assessment. Work area preparation

PO4 Perform relevant maintenance, installation, servicing and repair of electrical and electronic technology, systems, and equipment, using appropriate techniques and procedures to achieve the required quality outcomes and solutions. (40%)	T1- Plan and prepare T2 – Perform T3 – Review and report T4 - Handover	Health and safety Health and safety Systems and components Working with faults Health and safety Systems and components Reviewing and reporting Health and safety Reviewing and reporting	List of requirements and resources, and method statement. Risk assessment. Completed test records, updated maintenance records and control documents Annotated method statement. Maintenance activities and work area re-instatement Technical report Technical report and maintenance schedule. Handover meeting.

PO5 Review and evaluate activities to help improve workplace systems and processes associated with maintenance, installation, servicing and repair of electrical and electronic technology, systems, and equipment, demonstrating commercial awareness and accountability. (20%)	T2 – Perform T3 – Review and report T4 - Handover	Systems and components Reviewing and reporting Health and safety Reports and information	Completed test records, updated maintenance records and control documents Annotated method statement. Technical report and maintenance schedule. Handover meeting.
PO6 Communicate electrical and electronic maintenance, installation, servicing and repair information, proposals and solutions, producing, recording and explaining relevant technical information. (10%)	T3 – Review and report T4 - Handover	Reports and information Reports and information	Technical report and maintenance schedule. Handover meeting

314 Maintenance engineering technologies: Control and instrumentation

Level:	3
GLH:	680
Assessment method:	Practical assignment

What is this specialism about?

The purpose of this specialism is for learners to know and understand control and instrumentation systems commonly used in industry. Learners will have the opportunity to plan and undertake maintenance, fault finding, commissioning, testing and repair activities on control and instrumentation systems and devices, and complete associated documentation.

Learners will develop their knowledge and understanding of, and skills in:

- Knowledge of electronic sensing and measurement techniques and technologies used in control and instrumentation systems
- Knowledge and application of component classification, numbering and referencing systems
- Knowledge of how components are removed, replaced and repaired as part of control and instrumentation systems
- Skills to plan and prepare control and instrumentation maintenance activities using analysis and evaluation
- Skills to select and use tools, equipment, machinery and technology safely and effectively to complete control and instrumentation maintenance, installation and repair activities

Learners may be introduced to this specialism by asking themselves questions such as:

- How do control and instrumentation systems operate and function?
- Why is control required as part of an engineering system?
- What is the importance of accurate calibration and maintenance of control and instrumentation components and equipment?

Underpinning knowledge outcomes

On completion of this specialism, learners will understand:

1. Control and instrumentation knowledge criteria

Performance outcomes

On completion of this specialism, learners will be able to:

2. Analyse requirements, specifications and technical information to enable the delivery of successful maintenance, installation, servicing and repair of control and instrumentation technology, systems, and equipment.

3. Plan and prepare the maintenance, installation, servicing and repair of control and instrumentation technology, systems and equipment, taking into account the specific requirements and context.

4. Perform relevant maintenance, installation, servicing and repair of control and instrumentation technology, systems, and equipment, using appropriate techniques and procedures to achieve the required quality outcomes and solutions.

5. Review and evaluate activities to help improve workplace systems and processes associated with maintenance, installation, servicing and repair of control and instrumentation technology, systems, and equipment, demonstrating commercial awareness and accountability.

6. Communicate control and instrumentation maintenance, installation, servicing and repair information, proposals and solutions, producing, recording and explaining relevant technical information.

Completion of this specialism will give learners the opportunity to develop their Maths, English and Digital Skills. Details are presented at the end of the specification.

Specialism content

Outcome 1

Underpinning knowledge criteria for the performance outcomes

1.1 **Principles and techniques** for maintenance and repair.

Range:
Principles and techniques –

- removal and replacement activities – assembly and disassembly techniques, mechanical fixings/fastening
- conditions that determine repair – age of components, condition, costings, maintenance, replacement, repair, disposal, installation, downtime, productivity, quality, environmental
- maintenance and servicing strategies – reactive (condition-based monitoring, unplanned/emergency/post-fault), preventative (scheduled, planned, timed)
- disposal requirements – appropriate methods, documentation, legislation, sustainability and environmental considerations
- control documentation – schedules, specifications, method statements, authorisation, care and control procedures
- maintenance planning considerations – cost, production output, safety, skills and competency, equipment, job instructions)
- sources of information – data sheets, technical data, engineering drawings, exploded diagrams, planning sheets, workshop manuals, schematics
- types of tools – hand tools, power tools, test equipment, measuring instruments
- decommissioning considerations – down time, repair costs, environmental issues, productivity, quality, planning, lockouts, hazardous waste, risk assessments, permits, legislation.

What do learners need to learn?	**Skills**
Reasons of removal and replacement activities. Factors to be considered when determining either repair or replacement of assemblies or sub-assemblies. Types of documentation that are used to monitor, record and control maintenance activities and their typical contents. How to produce or amend appropriate technical documentation. The reasons for planning maintenance activities. Sources of information used in maintenance activities and how they are used. Types and purpose of tools and equipment used in maintenance activities. Disposal requirements appropriate to the waste and relevant legislation. Factors to be considered when decommissioning and their implications.	EC3, EC5, EC6, MC2, MC6, MC7, MC9, DC1, DC2, DC5.

Analyse requirements, specifications and technical information to enable the delivery of successful maintenance, installation, servicing and repair of control and instrumentation technology, systems, and equipment (PO2)

1.2 **Construction** and **operation** of power conversion systems.

Range:
Construction – electrical devices, electro-mechanical devices, inverters, transformers, control panels, regulators, rectifiers, motor-generators, rotary convertors.
Operation – frequency control, diodes convert alternating current (AC) to direct current (DC) and back, DC-DC convertors, efficiencies of systems.

What do learners need to learn?	Skills
Functions and operation of power conversion systems, and the components required to construct them. How power conversion systems work to achieve an output from an input. The working principles behind power conversion systems. Power flow analysis techniques and their applications.	EC5, MC2, MC3, MC4, MC6.

1.3 **Components** of electrical installations, including **failure modes** and **protection methods.**

Range:
Components – passive components (resistors, capacitors, inductors, transformers), active components (voltage and current sources), generators, transistors, operational amplifiers, diodes (Zener, photodiodes, light emitting diodes (LED)), residual current device (RCD).
Failure modes – equipment failure (human error, environmental conditions), circuit faults (symmetrical and unsymmetrical faults, short circuit and open circuit connections, high resistance connections, connections to earth), power supply faults (components out of specification, calibration of components, intermittent faults, tolerance testing), digital faults (input side, output side), program errors and codes, interference.
Protection methods – relays, earthing, bonding, fuse lock-off, immobilisers, circuit breakers, fail-safe mode.

What do learners need to learn?	Skills
Function and operational characteristics of electrical components. Identify common failure modes and protection methods. The advantages and limitations of different protection methods used in control and instrumentation. How to interpret and apply the latest edition IET wiring regulations HSE directive.	MC2, MC3, MC4, MC6, DC1.

1.4 **Properties** and **applications** of electrical and electronic **systems, circuits and components.**

Range:
Properties – voltage, current, resistance, impedance, power.
Systems – power electronics, microelectronics, digital electronics, integrated circuits, Wheatstone bridge, amplifiers, power supplies, sequential, asynchronous/synchronous logic, programmable systems, data logging and measurement systems, DC networks.
Circuits – series, parallel, series-parallel, open and closed circuits, control, latching, power, timer, auxiliary, printed circuit board (PCB), surface mount technology (SMT).
Components – switches, sensors (temperature, flow, level, pressure, light, proximity, position), diodes, transistors, rectifiers, capacitors, RCDs, resistors, inductors, relays, actuators, motors (electric, stepper, invertor, servo, induction, brushed, brushless, AC, DC, three phase, single phase), visual display units (VDU), human machine interface (HMI), transformers, operational amplifiers, potentiometers, power supply units.

What do learners need to learn?	Skills
The nature and behaviour of electricity in systems. The properties and operating principles of electrical and electronic circuits within control and instrumentation. The application of electrical and electronic circuits in instrumentation systems to control, measure and monitor processes. How components of electrical and electronic systems are used in control and instrumentation. Application of electrical and electronic laws and theorems.	MC3, MC4, MC6, DC1.

1.5 **Drive devices,** their purposes, **parameters** and applications.

Range:
Drive devices – basic input/output system (BIOS), hardware, adjustable drive devices, motors, pumps, belts, rams, gear trains, gearboxes, clutches, modulators, control units, sensing units, AC and DC units, microprocessors, microcontrollers, output devices, robotics, AI.
Parameters – inputs, process and outputs, memory, peripherals, hardware specifications, software and programming languages, logic operators (AND, OR, NOT).

What do learners need to learn?	Skills
Application and purpose of drive devices within control and instrumentation systems. The advantages and limitations of drive units. The purpose and outcomes of drive device parameters and how they contribute to the operation of the system. How programmable logic controllers (PLC's) operate and their applications in control and instrumentation. Purpose and outcomes of system testing.	EC5, MC2, MC3, MC4, MC6, DC1.

1.6 **Sensing** and **measurement techniques and technologies**.

Range:
Sensing – temperature, acceleration, position, pressure, displacement, vibration, proximity, force, flow (gas, liquid), viscosity, velocity, clarity, level, photo electric, switches, linear dimensions, clearances.
Sensing technologies – inductive, capacitive, hall effect, operational amplifiers, Wheatstone bridge, filtering, transformers, piezoelectric transducers, automatic, proximity.
Measurements – hysteresis, measuring of accuracy, reliability, static error, lag, responsiveness, reproductivity, dynamic error, fidelity.
Measurement techniques and technologies – multimeters, oscilloscopes, signal generators, thermocouples, thermal cameras, residual temperature devices (RTDs), turbidity, data logging, analysers (logic, dewpoint, hygrometers, hydrometers, thermometer), automatic, proximity.

What do learners need to learn?	Skills
The purposes and applications of electronic systems that measure and monitor performance. The relative benefits and limitations of sensing and measurement techniques and technologies. How sensing and measurement technologies are used to measure parameters and signals.	MC2, MC3, MC4, MC6, DC1.

1.7 **Component classification**, **numbering** and **referencing systems**.

Range:
Component classification – passive, active, electromechanical, manufacturers specifications.
Numbering – part numbers, identification numbers, manufacturers specifications, bill of materials (BOM), labelling, specifications, QR codes, barcodes.
Referencing systems – wiring identification, identification codes and technical data, data tables, colour codes, manufacturers data sheets, technical manuals, serial numbers, tags, component numbering, QR codes, barcodes, CE marking, standard reference designations for electrical and electronic parts and equipment (IEEE standards) colour codes, component numbering, IET wiring regulations (British Standard 7671), BS3939, EMC Directive, BS, IEC, EN and ISO Standards.

What do learners need to learn?	Skills
Component classifications including working principles. Standardised component numbering and referencing systems. How to interpret current IET, BS, IEC, EN and ISO standards related to control and instrumentation systems, including classification, numbering and referencing. Classification, numbering and referencing systems related to engineering documents.	MC2, MC3, MC4, MC6, DC1, DC5.

1.8 Key principles of **energy storage and transfer**.

Range:
Energy storage – current, electricity, static electricity, heat, kinetic, batteries, capacitors, compressed air, hydroelectricity, flywheel, pressurised tanks.
Energy transfer – methods of energy transfer (conduction, convection, radiation, kinetic, heat, electrical, circuits), energy efficiencies/inefficiencies, conversion systems (transmitters, transducers, 4-20ma loops).

What do learners need to learn?	Skills
Characteristics and methods of energy storage and transfer. The applications of energy storage and transfer methods. How energy forms are converted to enable storage.	MC4, MC6.

Plan and prepare the maintenance, installation, servicing and repair of control and instrumentation technology, systems and equipment, taking into account the specific requirements and context (PO3)

1.9 **Requirements** for **networked systems** in industry.

Range:
Requirements – communication, control modules, devices, network, bridges, bus interface, control loop, internet connection, cables (RS485, RS422, RS232, ribbon, USB), adaptors, electrical interface.
Networked systems – supervisory control and data acquisition (SCADA), distributed control system (DCS), process control system (PCS), electronic software distribution (ESD), safety instrumented systems (SIS), fibre glass systems (FGS), proportional integral derivative controller (PID), programmable logic controller (PLC), controller area network (CAN) bus, process field bus (Profibus), process field net (Profinet), foundation fieldbus (FF), Modbus (485, remote terminal unit (RTU)), device net, fibre optic networks, wireless systems, network LAN, ethernet, Bluetooth connectivity.

What do learners need to learn?	Skills
The principles and functions of networked systems. Requirements and applications for networked systems.	EC5, MC2, MC6, MC10, DC1, DC4, DC6.

Perform relevant maintenance, installation, servicing and repair of control and instrumentation technology, systems, and equipment, using appropriate techniques and procedures to achieve the required quality outcomes and solutions. (PO4)

1.10 **Hand tools**, **power tools** and **equipment.**

Range:
Hand tools – screwdrivers, torx, spanners, Allen keys, wrenches, micrometers, Vernier callipers, pliers, files, mole grips, side cutters, wire strippers, crimping tool, potentiometer trimmer.
Power tools – drills, pillar drills, air compressors.
Equipment – soldering and de-soldering equipment, multi-function calibrators, highway addressable remote transducer (HART), pressure sources, temperature baths, multimeters, oscilloscopes, clamp meters, loop calibrator, digital technologies (laptops, tablets, mobile applications, handheld PC (H/PC), personal digital assistant (PDA)).

What do learners need to learn?	Skills
How to check the physical condition and calibration dates of tools and equipment prior to use. The application of computerised monitoring systems using digital technologies. The suitable applications and limitations of the identified equipment. How to maintain tools and equipment and use safely, following all safety regulations relating to use. Risks and consequences of using non-authorised tools and equipment. How to safely operate equipment, machinery and technology. How to follow relevant guidelines and instructions, limits of own authority and expertise, and seek advice and guidance, where necessary.	EC5, MC1, MC2, MC3, MC4, DC1, DC4.

1.11 **Effects** of **environmental conditions** on materials, components, wiring, and equipment.

Range:
Effects – failure modes, working condition, drifting, false readings, degradation, corrosion, ingress, egress, leakages, system errors, blockages, electrical faults, mechanical faults, debris, cracking, brittle, disintegration, cleanliness, clarity.
Environmental conditions – humidity, moisture, temperature, pressure, heat, pollution, dirt, debris, radiation, chemicals.

What do learners need to learn?	Skills
How environmental conditions can affect materials components, wiring and equipment, and their potential effects. Characteristics relating to material quality and condition. How materials degrade and fail, including monitoring, maintaining and preventative techniques. Appropriate methods of maintenance, management, storage, preservation and prevention for materials, tools and equipment.	EC5, MC1, MC2, DC1, DC4, DC6.

1.12 **Network topologies** and **data transmission**.

Range:
Network topologies – elements as part of communication networks (star, bus, ring, mesh, tree, data transmission), equipment, communication devices.
Data transmission – digital data, analogue data, signals, multiplexing, communication devices (hub, switch, router, bridge, gateway), methods (serial data transmission, parallel data transmission).

What do learners need to learn?	Skills
Common arrangements and applications of network topologies. Different types of data used in network topologies. Computer software and platforms used to measure data transmission speeds. Data transmission methods and devices.	EC5, MC2, MC3, MC4, MC5, MC6, DC1, DC4, DC6.

1.13 **Parts** and **system elements**.

Range:
Parts – transducers, transmitters, displays, gauges, wiring, pipes, circuit boards, cable trays, sensors, switches, breakers, fuses, transistors, rectifiers, transformers, solenoids, thermocouples, RCDs, relays, output devices, luminaires, push buttons, measurement devices, (venturi tubes, orifice plates, resistance temperature devices (RTDs), thermocouples, ultrasonic sensors), circuit boards, isolators, guards, panels, interfaces, pipework, valves, manifolds, fastenings, supplies (power supplies, air supplies, fluid supplies)**,** communication equipment, HMI, PLC.
System elements – alarms, trips, temperature, flow, pressure, level, emergency, shutdown, control, feedback.

What do learners need to learn?	Skills
Identify control and instrumentation parts and system elements. The characteristics and functions of parts and system elements as part of an integrated system. Recognition of manufacturers service manuals in their use and application. How to safely operate machinery and technology. How to follow relevant guidelines and instructions, limits of own authority and expertise, and seek advice and guidance, where necessary.	EC5, MC1, MC2, MC3, MC5, DC1, DC4, DC6.

1.14 **Installation**, **configuration**, and **integration** of control and instrumentation systems.

Range:
Installation – client requirements, regulatory requirements, requirements for service, commissioning, isolation, manufacturers specifications, tools and equipment.
Configuration – setting parameters, calibration, testing, first use, operating systems, specifications, tools and equipment.
Integration – combining of system, functions, designs, planning, processes, tools and equipment.

What do learners need to learn?	Skills
Application of installation techniques, configuration and integration using the correct tools and following regulations.	EC5, MC1, MC2, MC3, MC4, MC5,

Requirements and procedures for installation and configuration of control and instrumentation systems. Installation and integration of wireless technologies and systems. How to safely operate machinery and technology for installation, configuration and integration of control and instrumentation systems. How to follow relevant guidelines and instructions, limits of own authority and expertise, and seek advice and guidance, where necessary.	MC6, DC1, DC4, DC6.

1.15 **Fault detection**, **diagnosis, isolation** and **resolution methods**.

Range:
Fault detection – self-diagnostic, unit substitution, input output, half split technique, 6 point technique, component isolation, operational experience, device diagnostics (HART, FF, Profibus, Profinet, HMI), sensory checks, reported faults, fault history, tools and equipment.
Fault diagnosis – sensory checks, collection of fault data (mean time between failures (MTBF), mean time to repair (MTTR)), self-diagnosis, inspection, digital systems, material testing, tools and equipment.
Isolation methods –lock out tag out (LOTO), release of stored energy, testing for dead (prove-test-prove), communication.
Resolution methods – replace, repair, adjust, modify, preventative measures, reporting, recording, informing, amendments.

What do learners need to learn?	**Skills**
Identifying faults utilising fault detection and diagnosis methods. Material testing methods and techniques. How to safely use tools, equipment and technology to detect and diagnose faults within assemblies and sub-assemblies. How to use resolution methods based on the fault diagnosis. Identify different isolation methods. The advantages and limitations of detection and diagnostic methods. How to interpret and comply with relevant legislation. How to apply safe isolation methods to complete resolution and rectification methods. How to follow relevant guidelines and instructions, limits of own authority and expertise, and seek advice and guidance, where necessary.	EC5, MC1, MC2, MC3, MC5, DC1, DC4, DC6.

1.16 Techniques for **disassembly, modification and re-assembly**.

Range:
Disassembly – safe release of stored energy, isolation, removal of housing and components, proof marking, disposal requirements, documentation, tools and equipment.
Modification – changing of parameters, wiring, adjustments, process change, removing and replacing components, housing and equipment, re-calibration, reporting and recording, tools and equipment.
Re-assembly – sub-assemblies, replacement of lifed items, attachments, fixings, tightening techniques, adjustments, powering up, documentation, QR codes, barcodes, tools and equipment.

What do learners need to learn?	Skills
Methods and procedures for the disassembly and re-assembly according to guidance and regulations. How to safely use tools, equipment and technology to disassembly, modify and re-assemble mechanical assemblies and sub-assemblies. Tightening techniques for different operations. The application and recording of different modification techniques. Types of lifed items. How to follow relevant guidelines and instructions, limits of own authority and expertise, and seek advice and guidance, where necessary.	EC5, MC1, MC2, MC3, MC4, MC5, MC7, DC1, DC4, DC6.

1.17 **Joining techniques**.

Range:
Joining techniques – permanent (soldering, adhesive bonding, heat shrink, crimping, conduit), semi-permanent (compression fittings, use of block connectors).

What do learners need to learn?	Skills
The characteristics of the different joining techniques and their applications.	EC5, MC1, MC2, MC3, MC5.

1.18 Control and **control loops**, positive, integral and derivative tuning **(P&ID tuning**) and feedback.

Range:
Control loops – 4-20 mA current loops, process variables, physical components, automation, adjustments, values, control functions.
P&ID tuning – positive, integral and derivative, current output, set gain, errors, summing, drifting, reliability, accuracy.

What do learners need to learn?	Skills
Principles and applications of control loops, P&ID tuning and feedback loops. The use of summing points in block diagrams. How adjustments can be applied for required system outputs.	EC5, MC1, MC2, MC3, MC4, MC5, MC7, DC1, DC4, DC6.

Review and evaluate activities to help improve workplace systems and processes associated with maintenance, installation, servicing and repair of control and instrumentation technology, systems, and equipment, demonstrating commercial awareness and accountability (PO5)

1.19 **Quality inspection, testing and recording methods.**

Range:
Quality inspection and testing methods – policies, procedures, guidance, organisational systems and requirements, sensory checks, checklists, maintenance instructions, data, reports, measurement, analysis of systems, communication, prior maintenance history, maintenance requirements, preventative measures.
Recording methods – maintenance logs, defect logs, reports, statements, checklists, equipment, digital technologies, amending documentation.

What do learners need to learn?	Skills
The purpose of quality inspection, testing and recording. Factors that can affect quality in control and instrumentation engineering and quality assurance processes. How variations and defects in engineering products and components are managed. Application of methods and techniques used within quality inspection and testing. The importance of using the correct quality inspection and testing techniques. The impact of inadequate quality inspection and testing. How to complete and record quality processes as part of quality control, assurance and improvement.	EC3, EC4, EC5, EC6, MC2, MC5, MC6, MC10, DC1, DC2, DC4.

Communicate control and instrumentation maintenance, installation, servicing and repair information, proposals and solutions, producing, recording and explaining relevant technical information (PO6)

1.20 **Communicating technical information and data**.

Range:
Communicating – record, manage, store, amend, upload data, collaborative technologies (shared drives, email, conferencing, software and programs, forums).
Technical information and data – test data, test results, maintenance results and findings, fault information, inspection sheets, maintenance logs, repair methods, instructions.

What do learners need to learn?	Skills
How to communicate information effectively in written and verbal methods. The importance of technical documentation for communication. How to create technical reports for maintenance, installation and repair activities. How collaborative technology is used to communicate technical information and data. Current legislation including GDPR and organisational procedures that are used to manage data and increase confidentiality of sensitive information.	EC1, EC2, EC3, EC4, EC5, MC5, MC7, MC10, DC1, DC2, DC3, DC4, DC5.

1.21 Digital, information and communication technology (**ICT**).

Range:
ICT – data systems, recording systems, electronic document and management systems.

What do learners need to learn?	**Skills**
How technology and systems are used to manage engineering data and documentation. Application of software and ICT techniques to record, manage, store and amend engineering information. Advantages and limitations of using ICT to record information.	EC4, EC5, MC5, MC10, DC1, DC3, DC4, DC5.

Practical criteria for performance outcomes

Outcome 2

2. Analyse requirements, specifications and technical information to enable the delivery of successful maintenance, installation, servicing and repair of control and instrumentation technology, systems, and equipment.

2.1 Confirm the **type**, **scope** and **requirements** of the activity, task or problem.

Range:
Type – installation, re-installation, position, configuration, assembly, disassembly, modification**,** fault finding (mechanical, electrical, data, system, pressure, operational, temperature), resolution methods, preventative measures, repairs, upgrade, downgrade.
Scope – tasks, features, costing, goals, deliverables, functions, requirements, outcomes, end product, depth, detail, time scales, sensory checks, maintenance records and schedules, agreed processes, evidence and data gathering, specifications, repair information, wiring diagrams, recall instructions.
Requirements – expectations and desired output, performance requirements, client requirements, reliability, integrate information, health and safety legislation and regulations.

What do learners need to demonstrate?	**Skills**
Gather, analyse and interpret technical information, data and evidence to confirm type, scope and requirements for the task, considering performance, quality and compliance. Use information to identify and confirm issues, problems, faults and areas for investigations. Analyse and identify likely causes, agreed processes, methods, expectations and outcomes. Interrogate technical documentation considering the accuracy, relevance, currency and completion to understand issues and appropriate methods for resolution or further investigation. Use and respond effectively to specifications, repair information, observed evidence, recall instructions, maintenance tables and technical bulletins. Interpret and confirm all health and safety requirements of maintenance, installation and repair activities.	EC4, EC5, EC6, MC2, MC3, MC5, MC6, MC7, MC9, MC10, DC1, DC4.

2.2 Evaluate the **condition**, quality and **performance** of **components**, systems, **materials** and resources.

Range:
Condition – working condition, serviceability (degradation, deterioration, damage, corrosion, disintegration), safety.
Performance – efficiency, accuracy, effectiveness, tolerance, outputs, reliability, sustainability.
Components – transducers, transmitters, displays, gauges, wiring, pipes, circuit boards, cable trays, sensors, switches, breakers, fuses, transistors, rectifiers, transformers, solenoids, push buttons, isolators, safety devices.
Materials – non-ferrous, ferrous, thermosetting, thermoplastics, composites, smart materials.
Resources – maintenance instructions, maintenance manuals, data sheets, material safety data sheets (MSDS), recording forms, maintenance logs, test certificates, work permits, health and safety regulations, environmental requirements, organisational procedures.

What do learners need to demonstrate?	Skills
Evaluate condition of components to ensure quality standards and requirements are met. Make effective decisions based on observation and information gathered to proceed with a task. Use diagnostic information and other evidence to determine control and instrumentation system and component serviceability and feasibility for maintenance and repair activities.	EC4, EC5, MC2, MC5, MC6, MC10, DC4.

2.3 Interpret control and instrumentation **representations**.

Range:
Representations – manuals, specifications, instructions, diagrams (block, circuit, schematic, wiring), drawings, symbols, annotations, conventions, standards, reports, results, statements, signage, tags, labels, data plates.

What do learners need to demonstrate?	Skills
Interpret representations to communicate and confirm details, processes and requirements of the control and instrumentation systems to support maintenance, installation and repair activities.	EC3, EC4, EC5, MC5, MC6, MC7, MC10, DC1, DC4, DC5.

Outcome 3

3. Plan and prepare the maintenance, installation, servicing and repair of control and instrumentation technology, systems and equipment, taking into account the specific requirements and context.

3.1 **Plan** and prepare **processes**, **resources**, **scope**, **technology, tools and equipment** to complete client expectations.

Range:
Plan – method statements, Standard Operating Procedures (SOPs), risk assessments, preparatory checks.
Processes – organisational, regulatory, maintenance, rectification, reporting, recording.
Resources – maintenance instructions, maintenance manuals, data sheets, MSDS, recording forms, maintenance logs, test certificates, work permits, health and safety regulations, environmental requirements, organisational procedures.
Scope – tasks, features, costing, time constraints, goals, deliverables, functions, requirements, outcomes, end product, depth, detail, time scales, sensory checks, maintenance records and schedules, agreed processes, evidence and data gathering, specifications, repair information, wiring diagrams, recall instructions.
Technology, tools and equipment – drills, pliers, wire cutters, wire strippers, de-soldering tool, spanners, screwdrivers, torx, files, hammers, Allen keys, crimping tool, test equipment (clamp meters, electronic control unit (ECU), diagnostic testers), measuring tools, oscilloscopes, signal generators, logic probes, data logger, soldering iron, multimeters, pressure source, flow meter, calibrators.

What do learners need to demonstrate?	Skills
Produce plans using information gathered to meet client requirements, including human resources and service impact, following SOPs. Confirm technology, tools and equipment availability to complete client requirements with consideration of history. Review, confirm and record stock levels, ordering processes, and lead-in times to complete the required task or activity. Evaluate and plan for wastage, disposal, recyclability and sustainability in maintenance, service and repair tasks and activities.	EC1, EC2, EC3, EC4, EC5, EC6, MC2, MC3, MC4, MC7, MC8, MC9, DC5.

3.2 **Risk assessment**.

Range:
Risk assessment – assessments of hazards (health and safety considerations, pneumatics, hydraulics, mechanical, electro-mechanical, temperature, abrasive wheels, hazardous substances, pressurised fluids, equipment, moving under suspended loads, risk of slips, trips and falls, working in restricted spaces), evaluation of risk (severity, impact), control measures (permits to work, SOPs, PPE), documentation.

What do learners need to demonstrate?	Skills
Complete risk assessments and implement control measures for maintenance, installation and repair activities, communicating risks according to policies and procedures. Complete risk management for maintenance and repair activities of control and instrumentation systems. Confirm processes, outcomes and mitigations used to reduce potential risks and issues.	EC1, EC2, EC3, EC4, EC5, DC1, DC2, DC4.

3.3 Quality, accuracy and completeness of **information** and **resources**.

Range:
Information – identification codes and technical data, manufacturers data sheets, manufacturers safety specifications, MSDS, colour codes, component numbering, schematics, material lists, sensory checks, fault data, checklists, reports, measurement, test results, inspection sheets, repair method statements (issue dates, amendments).
Resources – policies, procedures, guidance, second line verifications, organisational systems and requirements, maintenance logs, defect logs, reports, equipment, computer systems, data systems, recording systems, electronic document and management systems.

What do learners need to demonstrate?	**Skills**
Application of information and resources to ensure components are correct, complete, free of fault, and conform to specifications. Apply calibration requirements of components and equipment prior to commencing, the procedures for out-of-date calibrations and electrical safety checks.	EC4, EC5, MC2, MC3, MC4, MC6, MC7, MC8, MC9, DC1, DC2, DC4, DC5.

3.4 **Preparatory checks** for compliance, quality and functionality.

Range:
Preparatory checks – tools, equipment, calibration, isolation requirements, work area, sensory, specifications, bill of materials (BOM), test dates (PAT test, calibration, electrical safety).

What do learners need to demonstrate?	**Skills**
Carry out preparatory checks on materials, resources, tools, equipment, and other technologies. The advantages and limitations of preparatory checks for compliance, quality and functionality. Application of safe isolation and calibration checks on tools and equipment.	EC5, MC2, DC1.

3.5 **Plan and prepare** work areas for control and instrumentation processes and outcomes.

Range:
Plan and prepare – tools, equipment, materials, technical data, specifications, health and safety, workflow process, procedures, requirements, communication methods (verbal, digital), housekeeping, signage, barriers, training.

What do learners need to demonstrate?	**Skills**
Plan and prepare the work area for control and instrumentation processes and outcomes. Application of adjustments according to specifications and parameters in preparation for the task to be completed.	EC5, EC6, MC2, DC1.

Outcome 4

4. Perform relevant maintenance, installation, servicing and repair of control and instrumentation technology, systems, and equipment, using appropriate techniques and procedures to achieve the required quality outcomes and solutions.

4.1 **Maintain**, install and repair control and instrumentation systems, equipment, and components.

Range:
Maintain – total preventative, reactive, planned (timed, annual, bi-annual), corrective, condition-based monitoring.

What do learners need to demonstrate?	Skills
Complete maintenance installation and repair activities of control and instrumentation systems within agreed specifications, timeframes and standards of quality. Safely operate equipment, machinery and technology when completing maintenance, installation and repair tasks. Follow relevant guidelines and instructions, and seek advice and guidance, where necessary. Responsibilities of working individually and collaboratively to meet task, client and organisational standards, policies and expectations, in accordance with working practices. Application of electrical and electronic laws and theorems in maintenance, installation and repair activities. Follow and comply with all health and safety requirements of maintenance, installation and repair activities.	EC5, EC6, MC1, MC2, MC3, MC4, MC5, MC7, DC1, DC2, DC4, DC6.

4.2 **Diagnostic** and measurement techniques, **tools and equipment**.

Range:
Diagnostic tools and equipment – test equipment (multimeters, clamp meters, electronic control unit (ECU), diagnostic testers), measuring tools (micrometers, Vernier callipers, rule), oscilloscopes, signal generators, logic probes, data logger, flow meter, pressure gauges, pressure sources, calibrators.

What do learners need to demonstrate?	Skills
Follow manufacturer's instructions when using diagnostic and measuring equipment. Application of diagnostic and measurement techniques, tools and equipment to obtain accurate diagnostic information and measurements. Use fault detection techniques, tools and equipment to identify and locate faults and their causes in control and instrumentation devices, systems and equipment. Interpret and evaluate built in tests and self-diagnostic results.	EC5, EC6, MC1, MC2, MC3, MC4, MC5, MC6, MC7, DC1, DC4, DC6.

4.3 Operation and application of human interface technologies **(HMI)** and expert systems.

Range:
HMI – networks and drivers (SCADA, PID, PLC, CAN, Profibus, device net, microcontrollers), control, data acquisition.

What do learners need to demonstrate?	Skills
Use HMI technologies and expert systems to control and adjust system outputs. Obtain and analyse information from HMI technologies and expert systems to check for abnormal conditions.	EC5, MC1, MC2, MC3, MC4, MC5, MC6, DC1, DC4, DC5, DC6.

4.4 **Reactive** and **preventative** maintenance procedures.

Range:
Reactive – control monitoring, condition-based monitoring, unplanned, emergency, post-fault.
Preventative – scheduled, planned, timed.

What do learners need to demonstrate?	Skills
Determine schedule of tasks (remove, replace, repair) from diagnostic and measurement findings. Follow procedures to complete reactive maintenance tasks. Complete preventative maintenance procedures to reduce further failure or downtime, including recommending amendments to the maintenance schedule where appropriate.	EC5, MC1, MC2, MC3, MC4, MC5, MC6, DC4.

4.5 **Disassemble**, **assemble** and **install** control and instrumentation components, devices and systems.

Range:
Disassemble – powering down, isolation, functional safety (safety instrumented systems (SIS), safety integrity level (SIL)), removal of components, disposal requirements, documentation, de-solder, tools and equipment.
Assemble – structures, removal, powering up, documentation, attachments, fixings, tightening techniques, tools and equipment.
Install – client requirements, regulation requirements, 1st fix, 2nd fix of components, commissioning, isolation, manufacturers specifications, replacement parts, pipework, fasteners, functional safety checks.

What do learners need to demonstrate?	Skills
Follow all relevant processes when assembling and disassembling components, devices and systems. Application of requirements and specifications to ensure correct assembly and disassembly, considering technical data and instructions. Accurately position, install, calibrate and configure devices and equipment to agreed requirements and specifications. Consider and follow regulatory requirements throughout.	EC5, MC1, MC2, MC3, MC4, MC5, MC7, DC1, DC4, DC6.

4.6 **Commissioning** and **return to service** of control and instrumentation devices, systems and technology.

Range:
Commissioning – design, construct, test, integration, set parameters, check tolerances, live testing, test before first use, confirm performance and accuracy, alterations, wiring.
Return to service – power up, confirm functionality, reliability, serviceability, handover.

What do learners need to demonstrate?	**Skills**
Commission and return to service control and instrumentation devices, systems, and technology to fully operational condition. Application and purpose of testing the system is operating correctly, adjusting where necessary. Carry out commissioning procedures safely and checking the safety of control and instrumentation systems.	EC5, EC6, MC1, MC2, MC3, MC5, DC1, DC4, DC6.

4.7 Planned maintenance, **servicing** and repair **tasks**.

Range:
Servicing – fluid maintenance, component change, calibration, condition checks, functional checks, fitting replacement.
Tasks – wiring, crimping, measuring, cutting, soldering, stripping, removing and replacing circuits.

What do learners need to demonstrate?	**Skills**
Perform planned maintenance, servicing and repair tasks to control and instrumentation systems according to schedules. Review and analyse outputs, data and readings.	EC5, MC1, MC2, MC3, MC5, MC7, DC3, DC4.

4.8 **Re-instate** work areas.

Range:
Re-instate – equipment is functioning to specification, work area is back to original condition, returning of tools and equipment, correct disposal requirements followed, housekeeping.

What do learners need to demonstrate?	**Skills**
Reinstate work areas back to original condition upon completion of tasks. Manage the work area ensuring the area is left in safe condition. Check and return all tools and equipment back to storage facilities. Follow disposal requirements appropriate to the waste and relevant legislation.	EC5, MC2.

Outcome 5

5. Review and evaluate activities to help improve workplace systems and processes associated with maintenance, installation, servicing and repair of control and instrumentation technology, systems, and equipment, demonstrating commercial awareness and accountability.

5.1 **Safe systems of work** and legal compliance.

Range:
Safe systems of work – procedures, safe working practices, hazard identification, risk assessment and management, recording and documentation.

What do learners need to demonstrate?	Skills
Anticipate and identify potential risks and actual risks. Apply safe systems of work, following policies and procedures relevant to the task. Complete documentation of activities and reflect on outcomes. Follow and comply with safe working practices and legal compliance.	EC4, EC5, EC6, MC1, MC2, MC4, MC5, MC6, MC10, DC1, DC2, DC4.

5.2 Work area **practices**.

Range:
Practices – safe working, guidance, regulatory requirements, organisational requirements, scope, responsibility, documentation, reporting procedures.

What do learners need to demonstrate?	Skills
Monitor working area practices to prevent, resolve, manage, and mitigate issues arising during tasks. Identify potential issues, following correct procedures to report and record. Implement practices to manage stock levels, materials and availability of resources.	EC4, EC5, MC1, MC2, MC5, MC6, MC7, MC10, DC4, DC5.

5.3 Deal promptly and effectively with **issues**.

Range:
Issues – health and safety, age related use/wear, not meeting required standards or regulations, decommissioning, inappropriate use/lack of training, time constraints, cost implications, documentation discrepancies, tool and equipment failure.

What do learners need to demonstrate?	Skills
Deal with issues encountered throughout engineering tasks in a timely manner. Apply problem solving techniques to resolve issues within the limits of own authority and expertise. Follow reporting procedures to ensure issues and problems are communicated. Report and escalate issues and problems where falling outside the limits of own authority.	EC3, EC4, EC5, EC6, MC2, MC6, MC9, MC10, DC1, DC6.

5.4 Carry out **quality monitoring** and **assurance checks** to review processes.

Range:
Quality monitoring – inspections, reviewing (self, peer to peer, supervisory), amending, supervisory checks, second line, sampling and assessing quality.
Assurance checks – checking and validating reliability and durability, currency, accuracy, relevance, post-repair performance and functional tests.

What do learners need to demonstrate?	Skills
Conduct quality monitoring and assurance checks as part of a team's control and instrumentation maintenance, servicing and repair operations and processes. Review efficiency of processes, practices and outcomes to improve quality. Consistently check validity, accuracy and relevance of documentation. Communicate technical information, advice and suggestions for improvements. Suggest strategies to increase efficiency of quality monitoring processes, with consideration of performance and potential improvements.	EC4, EC5, EC6, MC4, MC5, MC6, MC10, DC1, DC2, DC3, DC4.

5.5 Make positive **contributions** for maintenance and operations whilst working effectively with others.

Range:
Contributions – communicate solutions, improvements, ideas, findings, designs, technical information, recommendations, research, facts, methods, operational changes, maintenance requirements.

What do learners need to demonstrate?	Skills
Recommend improvements, methods and other technical information as part of a team. Contribute effectively to maintenance, operations and team discussions. Working effectively with others and willing to assist where necessary and appropriate.	EC2, EC3, EC4, EC5, EC6, MC2, MC9, MC10.

5.6 Respond constructively to **feedback** and identify opportunities for personal and **organisational** improvement.

Range:
Feedback – reviews (self, peer to peer, supervisory), appraisals, reports, progress reviews, evaluation, statements, comments.
Organisational – commercial, productivity, safety, growth, activities, services, quality, technology, continuing professional development (CPD).

What do learners need to demonstrate?	Skills
Reflect and respond constructively to feedback provided throughout tasks and activities. Make suggestions for organisational improvement for commercial, productivity, and safety related. Review feedback, identifying and implementing opportunities, personally and within organisation.	EC2, EC6, MC2, MC9, MC10, DC2, DC3.

Outcome 6

6. Communicate control and instrumentation maintenance, installation, servicing and repair information, proposals and solutions, producing, recording and explaining relevant technical information.

6.1 **Record and amend** technical information, data, risks and issues.

Range:
Record and amend – diagrams, drawings, reports, results, maintenance logs, defect logs, reports, statements, checklists.

What do learners need to demonstrate?	**Skills**
Record findings, data, risks and issues from the task accurately to support control and instrumentation maintenance, servicing and repair work. Create technical reports to communicate maintenance, installation and repair information. Make amendments and recommendations at relevant stages, within the limits of own authority. Use records, information, and data to inform improved practices, recommendations, and continuous improvement.	EC3, EC4, MC2, MC5, DC1, DC3, DC4, DC5, DC6.

6.2 Complete **handover procedures**.

Range:
Handover – complete work, incomplete work, modifications, faults, further investigation, suggested updates and improvements to maintenance schedules, demonstration of system functionality, confirmation (completion, responsibility, quality standards, specific requirements and outcomes, agreement), due date of next maintenance activity, technical documentation.
Procedures – communication methods (verbal, written, digital), de-brief, technical documentation (test results and certificates, calibration certificates, appropriate calculations, maintenance schedules, drawings and diagrams, software update information, maintenance records), signatures and date.

What do learners need to demonstrate?	**Skills**
Accurately communicate handover information following organisational procedures The functionality of the system following maintenance, installation and repair activities. Communicate the reasons for non or partial functionality following maintenance, installation and repair activities, including any outstanding faults, defects or issues, and suggestions for future improvements. Follow and implement document version control for relevant paperwork and technical documentation where updates are made, including maintenance schedules and representations. Follow organisational handover procedures. Apply organisational policies (brief, meetings, documentation) to the handover procedures.	EC1, EC4, MC2, MC7, MC8, MC10, DC1, DC4.

6.3 Team-working, inter-personal skills and communication with **technical** and **non-technical audiences.**

Range:
Technical audiences – supervisors, engineers, colleagues, skilled technicians, apprentices.
Non-technical audiences – stakeholders, customers, clients, investors, colleagues (sales/service advisers, in house health and safety advisor).

What do learners need to demonstrate?	**Skills**
Communicate technical information as part of a team. Work as part of a team to obtain desired outcomes, maintaining positive and professional working relationships. Interact using inter-personal skills to contribute to team success. Adapt technical language appropriately to communicate with non-technical client/customers and colleagues.	EC1, EC2, EC3, EC4, EC5, EC6, DC3, DC4.

6.4 Communication methods, including **written**, **verbal** and **media**.

Range:
Written – note taking (lists, mind mapping/flow diagrams), writing style (business letter, memo writing, report styles and format, email), proofreading and amending text, use of logbook for planning and prioritising work schedules, graphical presentation techniques (graphs, charts and diagrams).
Verbal – speaking (with peers, supervisors, use of appropriate technical language, tone and manner), listening (use of paraphrasing and note taking to clarify meaning), impact and use of body language in verbal communication.
Media – inter/intranet (manuals, data, analytical software, manufacturers' catalogues), spreadsheets, databases, fault diagnostic software.

What do learners need to demonstrate?	**Skills**
Communicate information, requirements, expectations, plans, performance, and outcomes using different communication methods to convey and confirm maintenance, installation and repair information.	EC1, EC2, EC3, EC4, EC5, EC6, MC7, MC8, MC10, DC1, DC2, DC3, DC4, DC5.

Guidance for delivery

Opportunities for visits/engagement with local industry, employers and manufacturers should be provided throughout the delivery of the content within this specialism – where appropriate local employers could present details of recent projects including a variety of control and instrumentation maintenance activities, problems faced and how they were overcome. Learners work placement experiences could be presented to peers detailing where knowledge and skills within the content was seen in practice.

Formative assessment for the content may include oral Q&A, presentations to peers, observation of measuring activities etc. Reinforcement of learning can be encouraged through revisiting learning, group discussions, and the establishment of a peer support system within the cohort.

Providers must ensure content is delivered in line with current, up-to-date industry practice which will require;

- Provision of appropriate tools, equipment and test instrumentation for demonstration and practical training purposes
- Teaching coverage representing the type of equipment currently available and accepted for use in the UK industry

Suggested learning resources

Books

- B.E. Noltingk*. Instrument Systems: Jones' Instrumentation Technology,* 4th revised edition, Newnes-Butterworths, 1987, ISBN-13 978-0408012348
- N. J. Smith, *Engineering Project Management,* 3rd edition, Wiley-Blackwell Publishing, 2007, ISBN 9781405168021

Websites

- M. Hantel, G. Steindl, J. Woods, *Industrial Networking Requirements,* 2018, **https://grouper.ieee.org/groups///802/3/ad_hoc/ngrates/public/18_03/woods_nea_01_0318.pdf**
- Cisco, *What Is Network Topology?,* (n.d.), **https://www.cisco.com/c/en/us/solutions/automation/network-topology.html**
- HSE, *About Electrical, Control and Instrumentation*, (n.d.), **https://www.hse.gov.uk/eci/about.htm**.
- Gadallah, A., *Instrumentation & Control Process Control Fundamentals,* (n.d.) **https://www.academia.edu/36548458/Instrumentation_and_Control_Process_Control_Fundamentals**

Scheme of Assessment – Maintenance engineering technologies: Control and Instrumentation

The Maintenance engineering technologies: Control and Instrumentation is assessed by one practical assignment. The duration of the assessment is 22 hours. Learners will be assessed against the following assessment themes:

- Health and safety
- Planning and preparation
- Systems and components
- Working with faults
- Reviewing and reporting

By completing the following tasks:

Task	Typical Knowledge and skills
Task 1 – Plan and prepare	Displays a breadth of knowledge and practical skills that enables them to plan and prepare for carrying out maintenance, installation and repair activities on control and instrumentation systems. Candidates will need to produce documents and complete risk assessments that clearly details how they plan to complete the maintenance, servicing, installation and repair activities to meet the requirements of the with the brief.
Task 2 – Perform maintenance	Applies a breadth of knowledge, understanding and practical skills that enables them to carry out maintenance, servicing, installation and repair activities on a variety of control and instrumentation systems and machines. The task is carried out in a clear and logical sequence. Works in a safe manner, able to carry out fault detection, diagnosis, isolation and resolution methods effectively Tools, materials and equipment are selected and used correctly.
Task 3 – Review and report	Displays a breadth of knowledge and understanding in the evaluation of their maintenance, installation and repair activities, recommending personal and organisational improvements to the process. Justifications for diagnosis, isolation and resolution methods used. Justifications for how peer review feedback was considered and implemented.
Task 4 - Handover	Displays breath of knowledge and skills in communicating technical information to a variety of audience types and how to complete handover procedures effectively. Candidates will need to demonstrate critical thinking skills when responding to peer review feedback.

The information provided in the following tables demonstrates to approved providers the weightings of each performance outcome and how each performance outcome is assessed.

Performance outcome and weighting (%)	***High level tasks*** *Provide specific instructions for candidates to provide evidence for and are the same for every version of the assessment*	**Assessment Theme**	***Typical evidence***
PO2 Analyse requirements, specifications and technical information to enable the delivery of successful maintenance, installation, servicing and repair of control and instrumentation technology, systems, and equipment. (10%)	T1- Plan and prepare	Planning and preparation	List of requirements and resources, and method statement.

PO3 Plan and prepare the maintenance, installation, servicing and repair of control and instrumentation technology, systems and equipment, taking into account the specific requirements and context. (20%)	T1- Plan and prepare T2 – Perform	Health and safety Planning and preparation Systems and components Health and safety Planning and preparation Systems and components	List of requirements and resources, and method statement. Risk assessment. Work area preparation

PO4 Perform relevant maintenance, installation, servicing and repair of control and instrumentation technology, systems, and equipment, using appropriate techniques and procedures to achieve the required quality outcomes and solutions. (40%)	T1- Plan and prepare T2 – Perform T3 – Review and report T4 - Handover	Health and safety Health and safety Systems and components Working with faults Health and safety Systems and components Reviewing and reporting Health and safety Reviewing and reporting	List of requirements and resources, and method statement. Risk assessment. Completed test records, updated maintenance records and control documents Annotated method statement. Maintenance activities and work area re-instatement Technical report Technical report and maintenance schedule. Handover meeting.

PO5 Review and evaluate activities to help improve workplace systems and processes associated with maintenance, installation, servicing and repair of control and instrumentation technology, systems, and equipment, demonstrating commercial awareness and accountability. (20%)	T2 – Perform T3 – Review and report T4 - Handover	Systems and components Reviewing and reporting Health and safety Reports and information	Completed test records, updated maintenance records and control documents Annotated method statement. Technical report and maintenance schedule. Handover meeting.
PO6 Communicate control and instrumentation maintenance, installation, servicing and repair information, proposals and solutions, producing, recording and explaining relevant technical information. (10%)	T3 – Review and report T4 - Handover	Reports and information Reports and information	Technical report and maintenance schedule. Handover meeting

315 Light and electric vehicles

Level:	3
GLH:	680
Assessment method:	Practical assignment

What is this specialism about?

The purpose of this specialism is for learners to know fundamental light and electric vehicle systems and undertake key procedures for maintenance and repair. Learners will have the opportunity to plan, perform and evaluate their work whilst utilising a range of materials, tools and equipment.

Learners will develop their knowledge and understanding of, and skills in:

- Knowledge of electrical systems and components, power sources, power units, and engine types
- Knowledge and application of component classification, numbering and referencing systems
- Knowledge of how components are removed, replaced, and repaired as part of vehicle maintenance activities
- Skills to plan and prepare vehicle maintenance activities using evaluation
- Skills to select and use tools, equipment, and technology safely and effectively to complete vehicle maintenance, servicing, and repair activities

Learners may be introduced to this specialism by asking themselves questions such as:

- How do light and electric vehicle systems operate and function?
- What components are used in light and electric vehicle systems?
- How are maintenance and repair activities to light and electric vehicles planned and carried out?

Underpinning knowledge outcomes

On completion of this specialism, learners will understand:

1. Light and electric vehicles knowledge criteria

Performance outcomes

On completion of this specialism, learners will be able to:

2. Analyse requirements, specifications and technical information to enable the delivery of successful maintenance, installation, servicing and repair of vehicles.

3. Plan and prepare the maintenance, installation, servicing and repair of vehicles, taking into account the specific requirements and context.

4. Perform relevant maintenance, installation, servicing and repair of vehicles, using appropriate techniques and procedures to achieve the required quality outcomes and solutions.

5. Review and evaluate activities to help improve workplace systems and processes associated with vehicle maintenance, installation, servicing and repair, demonstrating commercial awareness and accountability.

6. Communicate vehicle maintenance, installation, servicing and repair information, proposals and solutions, producing, recording and explaining relevant technical information.

Completion of this specialism will give learners the opportunity to develop their Maths, English and Digital Skills. Details are presented at the end of the specification.

Specialism content

Outcome 1

Underpinning knowledge criteria for the performance outcomes

1.1 **Principles and techniques** for maintenance and repair.

Range:
Principles and techniques –

- removal and replacement activities – assembly and disassembly techniques, mechanical fixings/fastening
- conditions that determine repair – age of components, condition, costings, maintenance, replacement, repair, disposal, installation, downtime, productivity, quality, environmental
- maintenance and servicing strategies – reactive (condition-based monitoring, unplanned/emergency/post-fault), preventative (scheduled, planned, timed)
- disposal requirements – appropriate methods, documentation, legislation, sustainability and environmental considerations
- control documentation – schedules, specifications, method statements, authorisation, care and control procedures
- maintenance planning considerations – cost, production output, safety, skills and competency, equipment, job instructions)
- sources of information – data sheets, technical data, engineering drawings, exploded diagrams, planning sheets, workshop manuals, schematics
- types of tools – hand tools, power tools, test equipment, measuring instruments
- decommissioning considerations – down time, repair costs, environmental issues, productivity, quality, planning, lockouts, hazardous waste, risk assessments, permits, legislation.

What do learners need to learn?	**Skills**
Reasons of removal and replacement activities. Factors to be considered when determining either repair or replacement of assemblies or sub-assemblies. Types of documentation that are used to monitor, record and control maintenance activities and their typical contents. How to produce or amend appropriate technical documentation. The reasons for planning maintenance activities. Sources of information used in maintenance activities and how they are used. Types and purpose of tools and equipment used in maintenance activities. Disposal requirements appropriate to the waste and relevant legislation. Factors to be considered when decommissioning and their implications.	EC3, EC5, EC6, MC2, MC6, MC7, MC9, DC1, DC2, DC5.

Analyse requirements, specifications and technical information to enable the delivery of successful maintenance, installation, servicing and repair of vehicles (PO2)

1.2 Operation of **mechanical principles** and **systems.**

Range:
Mechanical principles – moment of a force (static and dynamic loading, stress, strain, tensile shear, compressive shear), thermal effects, friction, torque, types of levers, principle of moments, system principles (input, process and output), centre of gravity, simple gear ratios (gear train, pinion to starter ring gear), hydraulic, pneumatic, work done and efficiency, mechanical advantage.
Mechanical systems – engine (pistons, belts, chains, bearings, shafts), ancillary systems (fuel, lubrication, cooling), transmission (clutch, torque converter, drivetrain, gearboxes (manual and automatic)), axles, differential, gear reduction units, continuously variable transmission (CVT), chassis (steering, suspension, braking, wheels, tyres).

What do learners need to learn?	**Skills**
How the systems manage forces, power, and motion. The relationship between forces, power and motion found in vehicle systems. The principles and applications of vehicle mechanical systems. Calculations of the specified values.	EC5, MC3, MC4.

1.3 **Energy**, **force**, **power**, **motion,** and **mechanics**.

Range:
Energy – kinetic, potential, chemical, electrical, heat.
Force – types of forces, force and pressure, laws of friction, friction in a clutch, stress and strain (Young's modulus), forces in tension/compression.
Power – input and output speeds, input and output torque, generation.
Motion – linear, rotary, reciprocating, oscillating, acceleration/deacceleration (inertia, friction, regeneration and power).
Mechanics – calculation of gear ratios, compression ratios, brake efficiencies.

What do learners need to learn?	**Skills**
The fundamentals relating to friction in a clutch. Energy conversion that occurs in a motor vehicle. Vehicle related problems involving force, moments, gear ratios, stress and strain. Principles of motion relating to vehicles.	EC5, MC2, MC4, MC6.

1.4 Fundamentals of **common mechanisms** and **lifting equipment.**

Range:
Common mechanisms – governors, brakes, levers, gears, gear boxes, gear trains, torque converters, friction devices/clutches (mechanical, electronic, hydraulic), structural components (frames, bearings, springs, bushes).
Lifting equipment – jacks (pneumatic, hydraulic, mechanical, scissor, trolley, bottle, ramps, transmission), cranes, hoists.

What do learners need to learn?	**Skills**
The functions of common mechanisms used in vehicles. Characteristics of gears, including teeth, root, pitch, meshing, and backlash. How mechanisms maintain and control performance.	EC5, MC6.

How lifting equipment is used in vehicle maintenance and repair. Factors of safety, including safe working loads, when working with lifting equipment.	

1.5 **Power sources**, **power units**, and **engine types**, processes, functions and **performance**.

Range:
Power sources – diesel including common-rail, petroleum, hydrogen, Battery Electric Vehicle (BEV), Hybrid Electric Vehicle (HEV), Plug-In Hybrid Electric Vehicle (PHEV), Fuel Cell Electric Vehicle (FCEV), Mild Hybrid Electric Vehicle (MHEV), Mild Hybrid Variants.
Power units – volts, kilowatt, horsepower, torque.
Engine types – engine configuration (longitudinally mounted, transverse, front, mid and rear engines), cylinder arrangements, cylinder configuration (in-line, vee, W, horizontally opposed), engine cycle (four stroke, Atkinson, Otto), electric motor, hybrid layout systems, spark ignition (SI), compression ignition (CI), rotary.
Performance – swept and clearance volume, compression ratio, cubic capacity (CC), valve timing, ignition timing, port timing, pressure charging (turbocharger, supercharger).

What do learners need to learn?	**Skills**
Engine configuration and layout of given vehicles. Operating cycles of naturally aspirated and pressure charged internal combustion engines. The performance, processes and operations of different power sources. Performance advantages and limitations of different engine/power configurations and multi-cylinder arrangements. Calculations which apply to engine/power operating cycles using correct power units.	EC5, MC2, MC3, MC4, MC6, MC7, DC1.

1.6 **Primary** and **auxiliary systems**.

Range:
Primary systems – engine, transmission (single and multi-plate clutches, manual gearboxes, automatic gearboxes, direct shift gearboxes (DSG)), electrical (engine management system, ECU, motors, modulators, control units, sensors, actuators, AC and DC units), chassis (steering, suspension, brakes, wheels and tyres), gear reduction units, CVT.
Auxiliary systems – lighting, wiper, security and alarm, convenience systems (parking sensors, cameras, lane keeping), heating, ventilation and air conditioning (HVAC), satellite navigation, infotainment, phone induction charging, Bluetooth communication, USB, electric window, monitoring and instrumentation, Advanced Driver Assistance Systems (ADAS), anti-lock braking system (ABS).

What do learners need to learn?	**Skills**
Recognise key primary systems on a vehicle. Recognise auxiliary systems on a vehicle. How to check, maintain, adjust, replace, repair and test primary and auxiliary systems and components. Safety requirements of working on high voltage systems.	EC5, MC2, MC3, MC6, DC1, DC6.

1.7 Key principles of **energy storage** and **transfer.**

Range:
Energy storage – kinetic, potential, chemical, electrical, heat, pressure (hydraulic, pneumatic), conversion of energy, methods of storage (batteries, capacitors, flywheels, pressure vessels).
Energy transfer – methods of energy transfer (mechanical, electrical, induction, conduction, convection, radiation, heat, generation, co-efficient of friction, stop-start systems, regenerative braking, mild hybrid technology), energy efficiencies, transmissions, torque converters, belts, hydraulic/pneumatic systems, hardwire.

What do learners need to learn?	Skills
Characteristics and methods of energy storage and transfer. Application of energy storage and transfer methods. How energy forms are converted to enable storage.	MC4, MC6.

1.8 **Mechanical loadings** on **structures** and **components**.

Range:
Mechanical loadings – weight, torque, bending and torsion (static and dynamic), tension, compression, shear, fatigue, aerodynamics.
Structures – engine, chassis, transmission.
Components – transmission system (single and multi-plate clutches, manual gearboxes, automatic gearboxes, DSG), CVT, gear reduction systems, chassis system (steering, suspension, brakes, wheels and tyres).

What do learners need to learn?	Skills
Identify the main components of each vehicle system. Functions and calculations of mechanical loads on structures and components. Effects of mechanical loading on structures and components.	MC2, MC3, MC4, MC6, DC4.

1.9 **Construction** and **operation** of power conversion systems.

Range:
Construction – passive components (resistors, capacitors (polarised, non-polarised), inductors, transformers), active components (transistors, voltage and current sources), alternators (diodes, rectifiers, voltage regulator, stator and rotor), invertors.
Operation – frequency control, use of diodes to convert alternating current (AC) to direct current (DC) and back, intelligent battery chargers (hybrid, electric vehicle, DC-DC converters), efficiencies of systems, power flow.

What do learners need to learn?	Skills
Functions and operation of power conversion systems, and the components required to construct them. How power conversion systems work to achieve an output. Power flow analysis techniques and their applications.	EC5, MC2, MC3, MC4, MC6.

1.10 **Components** of electrical systems, including **failure modes** and **protection methods**.

Range:
Components – passive components (resistors, capacitors, inductors, diodes), active components (transistors, operational amplifiers (voltage and current sources), lighting circuits (lamps, light emitting diodes (LED`s), incandescent, halogen, xenon, high intensity discharge (HID)), batteries (lithium-ion, nickel metal hydride (NiMH), lead acid, auxiliary), battery cell modules, programmable microcontrollers, cables, wiring looms, photovoltaic cells, electrical power outlets, USB charging points.
Failure modes – circuit faults (short circuit and open circuit connections, high resistance connections, connections to earth), design and power supply faults (components out of specification, intermittent faults, tolerance testing), digital faults (input side, output side, logic stuck-at faults), equipment failure (human error, environmental conditions).
Protection methods – relays, earthing, bonding, fuses, fusible links, immobiliser, circuit breakers, diodes.

What do learners need to learn?	**Skills**
Function and operational characteristics of electrical components, cabling and wiring. Identify common failure modes and protection methods. The advantages and limitations of protection methods used in vehicle engineering. How to identify faults in circuits, power supplies and components. How to read and interpret wiring diagrams.	MC2, MC3, MC4, MC6, DC1.

1.11 **Properties** and applications of electrical and electronic **systems, circuits and components.**

Range:
Properties – voltage, current, resistance, impedance, power.
Systems – power supplies, digital electronics, starting, charging, ignition, electronic control unit (ECU), HVAC, lighting and auxiliary, control systems (mechanical, electro-mechanical, electrical, electronic, instrumentation, engine/powertrain), controller area network (CAN bus), single phase, three phase, DC networks.
Circuits – series, parallel, series-parallel, closed, open circuits latching, power, timer, auxiliary.
Components – switches, diodes, transistors (bipolar (NPN, PNP)), rectifiers, capacitors, resistors, inductors, relays, motors, transformers, potentiometers, power supply units.

What do learners need to learn?	**Skills**
The nature and behaviour of electricity in systems. The properties and applications of electrical and electronic circuits within light and electric vehicles. Characteristics of electrical and electronic systems, components and how they are used in a range of vehicle systems. Application of electrical and electronic laws and theorems.	MC3, MC4, MC6, DC1.

1.12 **Drive devices** their purposes, **parameters** and applications**.**

Range:
Drive devices – electrical (engine management system, ECU, motors, modulators, control units, sensors, actuators, AC and DC units), mechanical (transmission systems, motors, belts, shafts, clutches).
Parameters – inputs, process and outputs (IPO), memory, peripherals, tolerances.

What do learners need to learn?	**Skills**
The purpose and application of drive devices within motor vehicle maintenance and repair. The purpose and outcomes of drive device parameters and how they contribute to the operation of the system. Purpose and outcomes of system testing. The advantages and limitations of drive units.	EC5, MC2, MC3, MC4, MC6, DC1.

1.13 **Sensing** and **measurement techniques** and **technologies**.

Range:
Sensing – engine performance (engine load, temperature, air and fuel parameters, speed/position sensors, pressure sensors, seismic sensors, exhaust emissions, lambda sensor, security/warning systems, diagnostic techniques), transmission performance (speed/position sensors, pressure sensors, security/warning systems, diagnostic techniques), chassis performance (speed/position sensors, pressure sensors, security/warning systems, diagnostic techniques).
Sensing technologies – inductive sensors, Hall effect sensors, optical sensors, variable resistors, negative temperature co-efficient (NTC) and positive temperature co-efficient (PTC), piezoelectric transducers.
Measurement techniques and technologies – multimeters, oscilloscopes, diagnostic analysers, data logging/self-diagnosis equipment, dial tester indicator (DTI), emissions testers, frequency meter.

What do learners need to learn?	**Skills**
The purposes and applications of electronic systems that measure performance. The relative benefits and limitations of sensing and measurement techniques and technologies. How sensing and measurement technologies are used to measure parameters and signals.	MC2, MC3, MC4, MC6, DC1.

1.14 **Component classification**, **numbering** and **referencing systems.**

Range:
Component classification – passive, active, part numbers, engine, transmission, chassis/frame plates.
Numbering – vehicle registration number, part numbers (original equipment manufacturer (OEM), after-market), vehicle identification numbers (VIN), paint codes, tyre marking (construction, size, width, direction of rotation, aspect ratio, speed rating, load rating, ply type).
Referencing systems – wiring identification (low voltage, high voltage), vehicle layout, identification codes and technical data, manufacturers data sheets, manufacturers safety specifications, colour codes, component numbering, QR codes, barcodes, wiring/schematic diagrams, vehicle data, wheel alignment, BS3939, EMC Directive, BS, IEC, EN and ISO Standards.

What do learners need to learn?	Skills
The purposes and applications of component classification, numbering and referencing systems. How classification, numbering and referencing systems aid vehicle maintenance, service and repair. How to interpret current IET, BS, IEC, EN and ISO standards related to light and electric vehicles maintenance, service and repair, including classification, numbering and referencing. The importance of using OEM parts to validate warranty.	MC2, MC3, MC4, MC6, DC1, DC5.

Perform relevant maintenance, installation, servicing and repair of vehicles, using appropriate techniques and procedures to achieve the required quality outcomes and solutions (PO4)

1.15 **Hand tools**, **power tools** and **equipment.**

Range:
Hand tools – spanners (open ended, ring, combination), screwdrivers, Allen keys, ratchets and sockets (metric and imperial hex, bi-hex, torx, socket drive sizes (1/4,3/8 and ½ inch), universal joints, extension bars), hammers, mallets, files, cold chisels, punches, clamps, pliers, hacksaws, crimping tools, measuring tools (engineers' rule, micrometer (internal, external, depth), hydrometer, Vernier callipers), feeler gauge, angle gauges, torque wrench, tyre tread depth gauge, spark plug adaptor, hand diagnostic equipment, vehicle specific tools, refractometer, High Voltage System (HVS) tool set (insulated).
Power tools – impact wrenches, drills (compressed air/electric).
Equipment – European on-board diagnostic (EOBD2) compliant, lifting and stabilising (pneumatic/mechanical lifts, hydraulic jacks, axle/vehicle stands), pullers, chain blocks, testers (discharge, diagnostic, compression, cooling system pressure, fuel pressure, oil pressure, vacuum gauge, emission), dial test indicator (DTI), multimeters, oscilloscopes, battery chargers, compressors, welding (metal inert gas (MIG)/metal active gas (MAG)), rolling road.

What do learners need to learn?	Skills
How to check the physical condition of tools prior to use. The suitable applications and limitations of the identified equipment. How to maintain tools and equipment and use safely, following all regulations relating to use. Risks and consequences of using non-authorised tools and equipment. The applications of and main differences between the welding processes. How to safely operate equipment, machinery and technology. How to follow relevant guidelines and instructions, limits of own authority and expertise, and seek advice and guidance, where necessary.	EC5, MC1, MC2, MC3, MC4, DC1, DC4.

1.16 **Effects** of **environmental conditions** on materials, tools, and equipment.

Range:
Effects – failure modes, working condition, false readings, degradation, corrosion, ingress, egress, leakages, system errors, blockages, electrical faults, mechanical faults, debris, cracking, brittle, disintegration, cleanliness, clarity.
Environmental conditions – humidity, moisture, temperature, pressure, heat, pollution, dirt, debris, radiation, chemicals.

What do learners need to learn?	Skills
How environmental conditions can affect materials components, wiring and equipment, and their potential effects. Characteristics relating to material quality and condition. How materials degrade and fail, including monitoring, maintaining and preventative techniques. Appropriate methods of maintenance, management, storage, preservation and prevention for materials, tools and equipment.	EC5, MC1, MC2, DC1, DC4, DC6.

1.17 **Vehicle service parts** and **systems**.

Range:
Vehicle service parts – filters (pollen, air, oil, fuel, transmission, electric motor coolant), spark plugs, wiper blades, brakes, remote/intelligent key/fob battery, fluids (oil, transmission, power steering, coolant, screen wash, brake).
Systems – engine, chassis, transmission, electrical.

What do learners need to learn?	Skills
How to identify different vehicle service parts and systems in a motor vehicle. The characteristics and functions of vehicle service parts and systems used in motor vehicles. Recognition of manufacturers service manuals in their use and application. How to safely remove, repair and replace vehicle service parts when servicing light and electric vehicle systems. How to follow relevant guidelines and instructions, limits of own authority and expertise, and seek advice and guidance, where necessary.	EC5, MC1, MC2, MC3, MC5, DC1, DC4, DC6.

Maintenance, servicing, installation and repair methods and techniques:

1.18 **Configuration** and **integration** of light and electric vehicle systems.

Range:
Configuration – setting parameters, calibration, testing, first use, operating systems, specifications, tools and equipment.
Integration – combining of systems, functions, designs, planning, processes, tightening techniques, tools and equipment.

What do learners need to learn?	Skills
Methods and procedures for the disassembly and re-assembly of vehicle systems according to guidance and regulations. Application and recording of configuration and integration techniques to remove and replace components using the correct tools and following regulations. Requirements, procedures and considerations for configuration and integration of vehicle engineering systems. Tightening techniques for different operations. How to safely use tools, equipment and technology to complete maintenance, servicing and repair requirements. How to follow relevant guidelines and instructions, limits of own authority and expertise, and seek advice and guidance, where necessary.	EC5, MC1, MC2, MC3, MC4, MC5, MC7, DC1, DC4, DC6.

1.19 **Fault detection**, **diagnosis**, **resolution** and **isolation methods**.

Range:
Fault detection – self-diagnostic, input output, half split technique, end to end, top-down techniques, operator experience, component isolation, tools and equipment.
Fault diagnosis – sensory checks, collection of fault data, self-diagnosis, inspection, material testing, tools and equipment.
Resolution methods – replace, repair, adjust, modify.
Isolation methods – supply, electrical isolation, temperature, pressure.

What do learners need to learn?	**Skills**
Identifying faults utilising fault detection and diagnosis methods. Material testing methods and techniques. How to safely use tools, equipment and technology to detect and diagnose faults within assemblies and sub-assemblies. How to use resolution methods based on the fault diagnosis. Identify different isolation methods. The advantages and limitations of fault detection methods and isolation systems. How to remove, refit, replace and configure vehicle components and systems. How to apply safe isolation methods to complete resolution and rectification methods. How to follow relevant guidelines and instructions, limits of own authority and expertise, and seek advice and guidance, where necessary.	EC5, MC1, MC2, MC3, MC5, DC1, DC4, DC6.

1.20 Joining using **welding, bonding, and fastening**.

Range:
Welding – spot, metal inert gas (MIG), metal active gas (MAG), tungsten inert gas (TIG), gas (brazing, soldering), types of joint (butt, tee, lap, corner), types of weld preparation (cleaning, edge preparation, assembly, pre-heat), welding positions, standards (welding (BS EN ISO 6947, BS 4872, BS 1140, BS EN ISO 4063), vehicle damage repair (BS10125)).
Bonding - adhesive (anaerobic, cyanoacrylate, epoxy, plastisol, polyurethane, solvent rubber), friction, fusion, composites, adhesive bonding methods (heat activated, solvent activated, impact activated), preparation of surfaces, applications.
Fastening – threaded fixings (bolts, studs, set screws, self-tapping screws), non-threaded fixings (rivets (snap head, pan head, countersunk heads, pop rivets)), nuts, washers, pins, plastic, joint configurations (self-secured, lap joints, flanged joints grooved seams, double grooved seams, knocked up, panned down, slip joints, flexible joints, threaded joints).

What do learners need to learn?	**Skills**
The characteristics, functions and applications of different welding, bonding and fastening techniques used in vehicle maintenance and repair. How to safely use tools, equipment, machinery and technology to complete welding, bonding and fastening activities. How to follow relevant guidelines and instructions, limits of own authority and expertise, and seek advice and guidance, where necessary. The relevance and application of the latest vehicle damage repair and welding standards.	EC5, MC1, MC2, MC3, MC5.

Review and evaluate activities to help improve workplace systems and processes associated with vehicle maintenance, installation, servicing and repair, demonstrating commercial awareness and accountability (PO5)

1.21 **Quality inspection, testing and recording methods.**

Range:
Quality inspection and testing methods – policies, procedures, guidance, second line verifications, organisational systems and requirements, sensory checks, checklists, maintenance instructions, data, reports, measurements, analysis of systems, pre delivery inspection (PDI), used car inspection (UCI), roadworthiness test (MOT), vehicle health and seasonal checks, communication, prior maintenance history, maintenance requirements, preventative measures.
Recording methods – service information/records, recall bulletins, reports, statements, checklists (inspection, vehicle condition report, warranty claim form), job cards, digital technologies, amending documentation.

What do learners need to learn?	Skills
The purpose of quality inspection, testing and recording. Factors that can affect quality in light and electric vehicle maintenance and quality assurance processes. How variations and defects in engineering products and components are managed. Application of methods and techniques used within quality inspection and testing. The reasons for quality inspection and testing and the impact of inadequate quality inspection and testing. How to complete and record quality processes as part of quality control, assurance and improvement. The role of the Driver and Vehicle Standards Agency (DVSA) in vehicle maintenance and safety inspections.	EC3, EC4, EC5, EC6, MC2, MC5, MC6, MC10, DC1, DC2, DC4.

Communicate vehicle maintenance, installation, servicing and repair information, proposals and solutions, producing, recording and explaining relevant technical information (PO6)

1.22 **Communicating technical information and data**.

Range:
Communicating – record, manage, store, amend, upload data, collaborative technologies (shared drives, email, conferencing, software and programs, forums).
Technical information and data – test data, test results, maintenance results and findings, fault information, inspection sheets, service history, repair methods, maintenance schedules.

What do learners need to learn?	Skills
How to communicate information effectively in written and verbal methods. The importance of technical documentation for communication. How to create technical reports for light and electric vehicle maintenance, service and repair activities. How to use different types of technical information and data communication methods. How collaborative technology is used to communicate technical information and data. Current legislation including GDPR and organisational procedures that are used to manage data and increase confidentiality of sensitive information.	EC1, EC2, EC3, EC4, EC5, MC5, MC7, MC10, DC1, DC2, DC3, DC4, DC5.

1.23 Digital, information and communication technology (**ICT**).

Range:
ICT – data systems, recording systems, electronic document and management systems, collaborative technologies, electronic storage.

What do learners need to learn?	**Skills**
How technology and systems are used to manage vehicle maintenance and repair data and documentation. Application of software and ICT techniques to record, manage, store and amend vehicle maintenance and repair information. Advantages and limitations of using ICT to record information.	EC4, EC5, MC5, MC10, DC1, DC3, DC4, DC5.

Practical criteria for performance outcomes

Outcome 2

2. Analyse requirements, specifications and technical information to enable the delivery of successful maintenance, installation, servicing and repair of vehicles

2.1 Confirm the **type**, **scope** and **requirements** of the activity, task or problem.

Range:
Type – configuration, assembly, disassembly, modification**,** fault finding (mechanical, electrical, data, system, pressure, operational, temperature), resolutions methods, preventative measures, repairs, upgrade, downgrade.
Scope – tasks, features, costing, goals, deliverables, functions, requirements, outcomes, end product, depth, detail, time scales, sensory checks, maintenance records and schedules, agreed processes, evidence and data gathering, specifications, repair information, wiring diagrams, recall bulletins.
Requirements – expectations and desired output, performance requirements, customer/client requirements, reliability, integration of information, health and safety legislation and regulations.

What do learners need to demonstrate?	**Skills**
Gather, analyse and interpret technical information, data and evidence to confirm type, scope and requirements for the task, considering performance, quality and compliance. Use information to identify and confirm issues, problems, faults and areas for investigations. Analyse and identify likely causes, agreed processes, methods, expectations and outcomes. Interrogate technical documentation considering the accuracy, relevance, currency and completion to understand issues and appropriate methods for resolution or further investigation. Use and respond effectively to specifications, repair information, observed evidence, recall instructions, maintenance tables and technical bulletins. Interpret and confirm all health and safety requirements of light and electric vehicle maintenance, service and repair activities.	EC4, EC5, EC6, MC2, MC3, MC5, MC6, MC7, MC9, MC10, DC1, DC4.

2.2 Evaluate the **condition**, quality and **performance** of **components**, systems, **materials** and **resources**.

Range:
Condition – working condition, serviceability (degradation, deterioration, damage, corrosion, disintegration), safety.
Performance – efficiency, accuracy, effectiveness, tolerance, outputs, sustainability.
Components – passive components (resistors, capacitors, inductors, diodes), active components (transistors, operational amplifiers (voltage and current sources), lighting circuits (lamps, light emitting diodes (LEDs)), batteries (lead acid, auxiliary), cables, wiring looms.
Materials – non-ferrous, ferrous, thermosetting, thermoplastics, composites, smart materials.
Resources – manufacturers technical information/data, recording forms, service information/records, test results, job cards, health and safety regulations, material safety data sheets (MSDS), environmental requirements, organisational procedures, client information, requirements, performance data and diagnostic information.

What do learners need to demonstrate?	Skills
Evaluate condition of components to ensure quality standards and requirements are met. Make effective decisions based on observation and information gathered to proceed with a task. Use diagnostic information and other evidence to determine vehicle system and component serviceability and feasibility for maintenance and repair activities.	EC4, EC5, MC2, MC5, MC6, MC10, DC4.

2.3 Interpret light and electric vehicle **representations**.

Range:
Representations – manuals, specifications, instructions, diagrams (circuit, schematic, wiring), drawings, symbols, annotations, conventions, standards, reports, results, bulletins.

What do learners need to demonstrate?	Skills
Interpret representations to communicate and confirm details, processes and requirements of light and electric vehicle maintenance and repair activities.	EC3, EC4, EC5, MC5, MC6, MC7, MC10, DC1, DC4, DC5.

Outcome 3

3. Plan and prepare the maintenance, installation, servicing and repair of vehicles, taking into account the specific requirements and context

3.1 **Plan** and prepare **processes**, **resources**, **scope**, **technology, tools and equipment** to complete client expectations.

Range:
Plan – service sheets, risk assessments, preparatory checks, SOPs, toolbox talks, job cards.
Processes – organisational, regulatory, maintenance, rectification, reporting, recording.
Resources – manufacturers technical information/data, recording forms, service information/records, test results, job cards, health and safety regulations, environmental requirements, organisational procedures.
Scope – tasks, features, costing, functions, requirements, outcomes, end product, depth, detail, time scales, sensory checks, maintenance records and schedules, agreed processes, evidence and data gathering, specifications, repair information, wiring diagrams, recall bulletins.
Tools – spanners (open ended, ring, combination), screwdrivers, Allen keys, ratchets and sockets (metric hex, bi-hex, torx, socket drive sizes (1/4,3/8 and ½ inch), universal joints, extension bars), hammers, mallets, files, cold chisels, punches, clamps, pliers, hacksaws, crimping tools, measuring tools (engineers' rule, micrometer (internal, external, depth), hydrometer, Vernier callipers), feeler gauge, angle gauges, torque wrench, tyre tread depth gauge, spark plug adaptor, hand diagnostic equipment, vehicle specific tools, refractometer, insulated tool set, impact wrenches, drills.
Equipment – lifting and stabilising (pneumatic/mechanical lifts, hydraulic jacks, axle/vehicle stands), pullers, chain blocks, testers (discharge, diagnostic, compression, cooling system pressure, fuel pressure, oil pressure, vacuum gauge, emission), DTI, multimeters, oscilloscopes, data logger, battery chargers, compressors, welding (spot, metal inert gas (MIG), metal active gas (MAG), tungsten inert gas (TIG), gas (brazing, soldering), plasma cutting, beam setting, wheel alignment equipment.

What do learners need to demonstrate?	**Skills**
Produce plans using information gathered to meet client requirements, including human resources and service impact, following SOPs. Confirm technology, tools and equipment availability to complete client requirements with consideration of prior maintenance history. Identify components and parts that are required. Review, confirm and record stock levels, ordering processes, and lead-in times to complete the required task or activity. Evaluate and plan for wastage, disposal, recyclability and sustainability in maintenance, service and repair tasks and activities.	EC1, EC2, EC3, EC4, EC5, EC6, MC2, MC3, MC4, MC7, MC8, MC9, DC5.

3.2 **Risk assessment.**

Range:
Risk assessment – assessments of hazards (health and safety considerations, pneumatics, hydraulics, mechanical, electrical, electronic, electro-mechanical, temperature, hazardous substances, pressurised fluids, equipment, moving under suspended loads, risk of slips, trips and falls, working in restricted spaces, high voltage systems), evaluation of risk (severity, impact), control measures (permits to work, SOPs, PPE, Vehicle Protection Equipment (VPE)), documentation.

What do learners need to demonstrate?	Skills
Complete risk assessments and implement control measures for maintenance and repair activities, communicating risks according to policies and procedures. Complete risk management for maintenance and repair activities of vehicle systems. Confirm processes, outcomes and mitigations used to reduce potential risks and issues.	EC1, EC2, EC3, EC4, EC5, DC1, DC2, DC4.

3.3 Quality, accuracy and completeness of **information** and **resources**.

Range:
Information – identification codes and technical data, manufacturers technical information/data, colour codes, component numbering, schematics, material lists, MSDS, sensory checks, fault data, checklists, reports, measurements, test results, inspection sheets, technical bulletins, repair method statements (issue dates, amendments).
Resources – policies, procedures, regulations, guidance, second line verifications, organisational systems and requirements, maintenance information, defect logs, reports, equipment, data systems, electronic document and management systems.

What do learners need to demonstrate?	Skills
Application of accurate information and resources to ensure components are correct, complete, free of fault, and conform to specifications, grades, and dimensions. Application of calibration dates and requirements of components and equipment prior to commencing, the procedures for out-of-date calibrations and electrical safety checks.	EC4, EC5, MC2, MC3, MC4, MC6, MC7, MC8, MC9, DC1, DC2, DC4, DC5.

3.4 **Preparatory checks** for compliance, quality and functionality.

Range:
Preparatory checks – tools, equipment, calibration, isolation, work area, sensory.

What do learners need to demonstrate?	Skills
Carry out preparatory checks for materials, resources, tools, equipment, and other technologies. The advantages and limitations of preparatory checks for compliance, quality and functionality. Application of safe isolation, immobilisation and calibration of vehicles, tools and equipment.	EC5, MC2, DC1.

3.5 **Plan and prepare** work areas for light and electric vehicle maintenance and repair.

Range:
Plan and prepare – health and safety, risk assessments, tools, equipment, materials, technical data, service schedules, workflow processes.

What do learners need to demonstrate?	**Skills**
Plan and prepare the work area for vehicle inspection, maintenance and repair. Plan and prepare for welding activities, following all health and safety requirements for the work area, PPE and VPE. Application of adjustments to tools and equipment according to specifications and parameters in preparation for the task to be completed.	EC5, EC6, MC2, DC1.

Outcome 4

4. Perform relevant maintenance, installation, servicing and repair of vehicles, using appropriate techniques and procedures to achieve the required quality outcomes and solutions

4.1 **Maintain** and repair light and electric vehicle systems, equipment, and components.

Range:
Maintain – total preventative, reactive, service schedule (interim, main/full), corrective, condition-based monitoring.

What do learners need to demonstrate?	Skills
Complete maintenance and repair activities of vehicle systems, equipment and components within agreed specifications, timeframes and vehicle manufacturer standards. Safely operate equipment, machinery and technology when completing light and electric vehicle maintenance and repair tasks. Follow relevant guidelines and instructions, and seek advice and guidance, where necessary. Responsibilities of working individually and collaboratively to meet task, client and organisational standards, policies and expectations, in accordance with working practices. Application of electrical and electronic laws and theorems in light and electric vehicle maintenance, service and repair activities. Follow and comply with all legal, regulatory, and health and safety requirements of maintenance and repair activities.	EC5, EC6. MC1, MC2, MC3, MC4, MC5, MC7, DC1, DC4, DC6.

4.2 **Diagnostic** and measurement techniques, **tools and equipment**.

Range:
Diagnostic tools and equipment – hydraulic pressure, thermal checks, torque devices, EOBD2, oscilloscopes, DTI gauge, testers (coolant, brake fluid, battery, discharge, diagnostic, compression, cooling system pressure, fuel pressure, oil pressure, vacuum gauge, emission), wheel alignment, beam setting, rolling road.

What do learners need to demonstrate?	Skills
Follow manufacturer's instructions when using diagnostic and measuring equipment. Application of diagnostic and measurement techniques, tools and equipment to obtain accurate information and results on performance, condition and compliance. Use fault detection techniques, tools and equipment to identify and locate faults, and their causes in vehicle systems. Interpret and evaluate built in tests and self-diagnostic results.	EC5, EC6, MC1, MC2, MC3, MC4, MC5, MC6, MC7, DC1, DC4, DC6.

4.3 **Reactive** and **preventative** maintenance procedures.

Range:
Reactive – control monitoring, condition-based monitoring, unplanned, emergency, post-fault.
Preventative – scheduled, planned, timed.

What do learners need to demonstrate?	**Skills**
Determine schedule of tasks (remove, replace, repair) from diagnostic and measurement findings. Follow procedures to complete reactive maintenance tasks. Complete preventative maintenance procedures to reduce further failure or downtime, including recommending amendments to the maintenance schedule where appropriate.	EC5, MC1, MC2, MC3, MC4, MC5, MC6, DC4.

4.4 **Disassemble**, **assemble** and **configure** light and electric vehicle components, devices and systems.

Range:
Disassemble – powering down, removal of stored energy, isolation, removal of components, proof marking, disposal requirements, documentation.
Assemble – structures, removal, attachments, fixings, tightening techniques, powering up, re-energising, testing, documentation.
Configure – setting parameters, calibration, testing, first use, operating systems, specifications.

What do learners need to demonstrate?	**Skills**
Processes to be followed when assembling and disassembling components, devices and systems. Apply requirements and specifications to ensure correct assembly and disassembly, considering technical data and instructions. Accurately position, replace, calibrate and configure devices and equipment to agreed requirements and specifications. Consider and follow regulatory requirements throughout.	EC5, MC1, MC2, MC3, MC4, MC5, MC7, DC1, DC4, DC6.

4.5 Carry out **pre** and **post-work inspections**.

Range:
Pre-work inspections – windscreen (damage free, screen wash level), lights (check rear lights, indicators, headlight, interior), seatbelt, external bodywork (scratches, dents), tyres (condition, pressure).
Post-work inspections – quality control checks (QC), additional checks (inspect for visible leaks, visual condition), checking of all fluid and lubricant levels, checking for dirty handprints on the bodywork, interior is in good condition.

What do learners need to demonstrate?	**Skills**
Complete pre- and post-work inspections to ensure work is completed to agreed specifications and client requirements. Complete vehicle handover documentation prior to release to client.	EC5, EC6, MC1, MC2, MC3, MC5, DC1, DC4, DC6.

4.6 Planned maintenance, **servicing** and repair **tasks**.

Range:
Servicing – fluid maintenance, calibration, safety and condition checks, functional checks, component change, fitting replacement, reviewing and analysing outputs, data, readings.
Tasks – measuring, cutting, drilling, filing, removing and replacing bolts, screws and clips, replacing seals, extracting and replacing damaged fasteners, applying surface treatments, welding (spot, MIG, MAG, gas (brazing, soldering)), bonding (adhesive (anaerobic, cyanoacrylate, epoxy, plastisol, polyurethane, solvent rubber), friction, fusion, composites), fastening (threaded fixings (bolts, studs, set screws, self-tapping screws), non-threaded fixings (rivets (snap head, pan head, countersunk heads, pop rivets)), nuts, washers, pins, plastic.

What do learners need to demonstrate?	**Skills**
Perform planned maintenance, servicing and repair tasks to vehicle systems according to schedules. Carry out welding, fastening and bonding where appropriate following all health and safety requirements. Review and analyse outputs, data and readings.	EC5, MC1, MC2, MC3, MC5, MC7, DC3, DC4.

4.7 **Re-instate** work areas.

Range:
Re-instate – equipment is functioning to specification, work area is back to original condition, returning of tools and equipment, correct disposal requirements followed, housekeeping.

What do learners need to demonstrate?	**Skills**
Reinstate work areas back to original condition upon completion of tasks. Manage the work area ensuring the area is left in a safe condition. Check and return all tools and equipment back to storage facilities. Follow disposal requirements appropriate to the waste and relevant legislation.	EC5, MC2.

Outcome 5

5. Review and evaluate activities to help improve workplace systems and processes associated with vehicle maintenance, installation, servicing and repair, demonstrating commercial awareness and accountability

5.1 **Safe systems of work** and legal compliance.

Range:
Safe systems of work – procedures, safe working practices, risk assessment and management, recording and documentation.

What do learners need to demonstrate?	Skills
Anticipate and identify potential risks and actual risks. Apply safe systems of work, following policies and procedures relevant to the task. Complete documentation of activities and reflect on outcomes. Follow and comply with safe working practices and legal compliance.	EC4, EC5, EC6, MC1, MC2, MC4, MC5, MC6, MC10, DC1, DC2, DC4.

5.2 Work area **practices**.

Range:
Practices – safe working, guidance, regulatory requirements, organisational requirements, scope, responsibility, documentation, reporting procedures.

What do learners need to demonstrate?	Skills
Monitor working area practices to prevent, resolve, manage, and mitigate issues arising during tasks. Identify potential issues, following correct procedures to report and record. Implement practices to manage stock levels, materials, and availability of resources.	EC4, EC5, MC1, MC2, MC5, MC6, MC7, MC10, DC4, DC5.

5.3 Deal promptly and effectively with **issues**.

Range:
Issues – health and safety, age related use/wear, not meeting required standards or regulations, inappropriate use/lack of training, time constraints, cost implications, documentation discrepancies, tool and equipment failure.

What do learners need to demonstrate?	Skills
Deal with issues encountered throughout vehicle tasks in a timely manner. Apply problem solving techniques to resolve issues within the limits of own authority and expertise. Follow reporting procedures to ensure issues and problems are communicated. Report and escalate issues and problems where falling outside the limits of own authority.	EC3, EC4, EC5, EC6, MC2, MC6, MC9, MC10, DC1.

5.4 Carry out **quality monitoring** and **assurance checks** to review processes.

Range:
Quality monitoring – inspections, reviewing (self, peer to peer, supervisory), amending, supervisory checks, checking of quality.
Assurance checks – checking and validating reliability and durability, post-repair performance and functional tests.

What do learners need to demonstrate?	Skills
Conduct quality monitoring and assurance checks as part of vehicle maintenance, servicing and repair operations and processes. Review efficiency of processes, practices and outcomes to improve quality. Consistently check validity, accuracy and relevance of documentation. Communicate technical information, advice and suggestions for improvements. Suggest strategies to increase efficiency of quality monitoring processes, with consideration of performance and potential improvements.	EC4, EC5, EC6, MC4, MC5, MC6, MC10, DC1, DC2, DC3, DC4.

5.5 Make positive **contributions** for maintenance and operations whilst working effectively with others.

Range:
Contributions – communicate solutions, improvements, ideas, findings, designs, technical information, recommendations, research, facts, methods, operational changes, maintenance requirements.

What do learners need to demonstrate?	Skills
Recommend improvements, methods and other technical information as part of a team. Contribute effectively to maintenance, operations and team discussions. Working effectively with others and willing to assist where necessary and appropriate.	EC2, EC3, EC4, EC5, EC6, MC2, MC9, MC10.

5.6 Respond constructively to **feedback** and identify opportunities for personal and **organisational** improvement.

Range:
Feedback – reviews (self, peer to peer, supervisory), appraisals, reports, progress reviews, evaluation, client.
Organisational – commercial, productivity, safety, growth, activities, services, quality, technology, continuing professional development (CPD).

What do learners need to demonstrate?	Skills
Reflect and respond constructively to feedback provided throughout tasks and activities. Make suggestions for organisational improvements for commercial, productivity, and safety. Review feedback, identifying and implementing opportunities, personally and professionally within the organisation.	EC2, EC6, MC2, MC9, MC10, DC2, DC3.

Outcome 6

6. Communicate vehicle maintenance, installation, servicing and repair information, proposals and solutions, producing, recording and explaining relevant technical information

6.1 **Record and amend** technical information, data, risks and issues.

Range:
Record and amend – job cards, diagrams, drawings, reports, results, service information/records, recall bulletins, reports, checklists, test certificates.

What do learners need to demonstrate?	Skills
Record findings, data, risks and issues from the task accurately to support vehicle maintenance, servicing and repair work. Create technical reports to communicate maintenance, service and repair information. Make amendments and recommendations at relevant stages, within the limits of own authority and expertise. Use records, information, and data to inform improved practices, recommendations, and continuous improvement.	EC3, EC4, MC2, MC5, DC1, DC3, DC4, DC5, DC6.

6.2 Complete **handover procedures**.

Range:
Handover – complete work, incomplete work, modifications, faults, further investigation, suggested updates and improvements to maintenance schedules, demonstration of system functionality, confirmation (completion, responsibility, quality standards, specific requirements and outcomes, agreement), due date of next maintenance activity, technical documentation.
Procedures – communication methods (verbal, written, digital), de-brief, technical documentation (test results and certificates, calibration certificates, appropriate calculations, maintenance schedules, drawings and diagrams, software update information, maintenance records), signatures and date.

What do learners need to demonstrate?	Skills
Accurately communicate handover information following organisational procedures The functionality of the system following maintenance, service and repair activities. Communicate the reasons for non or partial functionality following maintenance, service and repair activities, including any outstanding faults, defects or issues, and suggestions for future improvements. Follow and implement document version control for relevant paperwork and technical documentation where updates are made, including maintenance schedules and representations. Follow organisational handover procedures. Apply organisational policies (brief, meetings, documentation) to the handover procedures.	EC1, EC4, MC2, MC7, MC8, MC10, DC1, DC4.

6.3 Team-working, inter-personal skills and communication with **technical** and **non-technical audiences**.

Range:
Technical audiences – supervisors, engineers, colleagues, skilled technicians, managers, apprentices.
Non-technical audiences – stakeholders, clients, investors, colleagues (sales/service advisers, in house health and safety advisor).

What do learners need to demonstrate?	**Skills**
Communicate technical information as part of a team. Work as part of a team to obtain desired outcomes, maintaining positive and professional working relationships. Interact using inter-personal skills to contribute to team success. Adapt technical language appropriately to communicate with non-technical client/customers and colleagues.	EC1, EC2, EC3, EC4, EC5, EC6, DC3, DC4.

6.4 Communication methods, including **written**, **verbal** and **media**.

Range:
Written – note taking (lists, mind mapping/flow diagrams), writing style (business letter, memo writing, report styles and format, email), proofreading and amending text, use of logbook for planning and prioritising work schedules, graphical presentation techniques (graphs, charts and diagrams).
Verbal – speaking (with peers, supervisors, use of appropriate technical language, tone and manner), listening (use of paraphrasing and note taking to clarify meaning), impact and use of body language in verbal communication.
Media – inter/intranet (manuals, data, analytical software, manufacturers' catalogues), spreadsheets, databases, fault diagnostic software.

What do learners need to demonstrate?	**Skills**
Communicate information, requirements, expectations, plans, performance, and outcomes using different communication methods to convey and confirm maintenance, installation and repair information. Use different methods of communication to meet the needs of clients and colleagues.	EC1, EC2, EC3, EC4, EC5, EC6, MC7, MC8, MC10, DC1, DC2, DC3, DC4, DC5.

Guidance for delivery

Opportunities for visits/engagement with local industry, employers and manufacturers should be provided throughout the delivery of the content within this specialism – where appropriate local employers could present details of recent projects including a variety of light and electric vehicle maintenance, servicing and repair activities, problems faced and how they were overcome. Learners work placement experiences could be presented to peers detailing where knowledge and skills within the content was seen in practice.

Formative assessment for the content may include oral Q&A, presentations to peers, observation of measuring activities etc. Reinforcement of learning can be encouraged through revisiting learning, group discussions, and the establishment of a peer support system within the cohort.

Providers must ensure content is delivered in line with current, up-to-date industry practice which will require;

- Provision of appropriate tools, equipment and test instrumentation for demonstration and practical training purposes
- Teaching coverage representing the type of equipment currently available and accepted for use in the UK industry

Suggested learning resources

Books

- A. Bonnick, — *Vehicle Electronic Systems and Fault Diagnosis,* 1st edition, Butterworth - Heinemann, 2004, ISBN 9780340706305
- V. Hillier, *Hillier's Fundamentals of Automotive Electronics Book 2,* 6th Edition, Nelson Thornes, 2012, ISBN 9781408515372
- M. Nunney, *Light and Heavy Vehicle Technology,* 4th edition, Butterworth-Heinemann, 2006, ISBN 9780750680370
- N. J. Smith, *Engineering Project Management,* 3rd edition, Wiley-Blackwell Publishing, 2007, ISBN 9781405168021
- Denton Tom — *Automobile Electrical and Electronic Systems* (Butterworth-Heinemann, 2004) ISBN 0750662190

Websites

https://www.hse.gov.uk/pUbns/priced/hsg261.pdf

Scheme of Assessment – Light and Electric Vehicles

The Light and Electric Vehicles Occupational Specialism is assessed by one practical assignment. The duration of the assessment is 22 hours. Learners will be assessed against the following assessment themes:

- Health and safety
- Planning and preparation
- Systems and components
- Working with faults
- Reviewing and reporting

By completing the following tasks:

Task	Typical Knowledge and skills
Task 1 – Plan and prepare	Displays a breadth of knowledge and practical skills that enables them to plan and prepare for carrying out maintenance, installation and repair activities on light and electric vehicles. Candidates will need to produce documents and complete risk assessments that clearly details how they plan to complete the maintenance, servicing, installation and repair activities to meet the requirements of the with the brief.
Task 2 – Perform maintenance	Applies a breadth of knowledge, understanding and practical skills that enables them to carry out maintenance, servicing, installation and repair activities on a variety of light and electric vehicles. The task is carried out in a clear and logical sequence. Works in a safe manner, able to carry out fault detection, diagnosis, isolation and resolution methods effectively Tools, materials and equipment are selected and used correctly.
Task 3 – Review and report	Displays a breadth of knowledge and understanding in the evaluation of their maintenance, installation and repair activities, recommending personal and organisational improvements to the process. Justifications for diagnosis, isolation and resolution methods used. Justifications for how peer review feedback was considered and implemented.
Task 4 - Handover	Displays breath of knowledge and skills in communicating technical information to a variety of audience types and how to complete handover procedures effectively. Candidates will need to demonstrate critical thinking skills when responding to peer review feedback.

The information provided in the following tables demonstrates to approved providers the weightings of each performance outcome and how each performance outcome is assessed.

Performance outcome and weighting (%)	***High level tasks*** *Provide specific instructions for candidates to provide evidence for and are the same for every version of the assessment*	**Assessment Theme**	***Typical evidence***
PO2 Analyse requirements, specifications and technical information to enable the delivery of successful maintenance, installation, servicing and repair of vehicles. (10%)	T1- Plan and prepare	Planning and preparation	List of requirements and resources, and job cards.
PO3 Plan and prepare the maintenance, installation, servicing and repair of vehicles, taking into account the specific requirements and context. (20%)	T1- Plan and prepare T2 – Perform	Health and safety Planning and preparation Systems and components Health and safety Planning and preparation Systems and components	List of requirements and resources, and job cards. Risk assessment. Work area preparation

PO4 Perform relevant maintenance, installation, servicing and repair of vehicles, using appropriate techniques and procedures to achieve the required quality outcomes and solutions. (40%)	T1- Plan and prepare T2 – Perform T3 – Review and report T4 - Handover	Health and safety Health and safety Systems and components Working with faults Health and safety Systems and components Reviewing and reporting Health and safety Reviewing and reporting	List of requirements and resources, and job cards. Risk assessment. Completed test records, updated manufacturer's service sheets, maintenance records and control documents Annotated method statement. Maintenance activities and work area re-instatement Technical report Technical report and maintenance schedule. Handover meeting.
PO5 Review and evaluate activities to help improve workplace systems and processes associated with vehicle maintenance, installation, servicing and repair, demonstrating commercial awareness and accountability. (20%)	T2 – Perform T3 – Review and report T4 - Handover	Systems and components Reviewing and reporting Health and safety Reports and information	Completed test records, updated manufacturer's service sheets, maintenance records and control documents Annotated job cards. Technical report and maintenance schedule. Handover meeting.

PO6 Communicate vehicle maintenance, installation, servicing and repair information, proposals and solutions, producing, recording and explaining relevant technical information. (10%)	T3 – Review and report T4 - Handover	Reports and information Reports and information	Technical report and maintenance schedule. Handover meeting

Appendix 1 Maths, English and digital skills

General English Competencies

The General English Competencies outline a framework of six General Digital Competences, with no prioritisation or interpretation of order intended:

- EC1. Convey technical information to different audiences
- EC2. Present information and ideas
- EC3. Create texts for different purposes and audiences
- EC4. Summarise information/ideas
- EC5. Synthesise information
- EC6. Take part in/lead discussions

General Mathematical Competencies

The General Mathematical Competencies outline a framework of ten General Mathematical Competences, with no prioritisation or interpretation of order intended:

- MC1. Measuring with precision
- MC2. Estimating, calculating and error spotting
- MC3. Working with proportion
- MC4. Using rules and formulae
- MC5. Processing data
- MC6. Understanding data and risk
- MC7. Interpreting and representing with mathematical diagrams
- MC8. Communicating using mathematics
- MC9. Costing a project
- MC10. Optimising work processes

General Digital Competencies

The following outlines a framework of six General Digital Competences, with no prioritisation or interpretation of order intended:

- DC1. Use digital technology and media effectively
- DC2. Design, create and edit documents and digital media
- DC3. Communicate and collaborate
- DC4. Process and analyse numerical data
- DC5. Be safe and responsible online
- DC6. Controlling digital functions

Appendix 2 Sources of general information

The following documents contain essential information for Providers delivering City & Guilds T Level Technical Qualifications. They should be referred to in conjunction with this specification and the Provider approval and quality assurance information.

You can download these from **www.cityandguilds.com**.

Centre Contract General Terms
Quality Assurance Standards: Centre Handbook
Quality Assurance Standards: Centre Assessment

Within these documents you will find information in relation to;

- centre assessment,
- internal quality assurance (IQA),
- IQA strategy,
- alternative locations and subcontractors,
- non-compliance,
- malpractice, and
- centre support roles and resources

All T Level providers must ensure they familiarise themselves with the above documents and adhere to the general terms as part of their conditions of approval.

Useful contacts

UK learners General qualification information	**E: learnersupport@cityandguilds.com**
International learners General qualification information	**E: intcg@cityandguilds.com**
Centres Exam entries, Certificates, Registrations/enrolment, Invoices, Missing or late exam materials, Nominal roll reports, Results	**E: centresupport@cityandguilds.com**
Single subject qualifications Exam entries, Results, Certification, Missing or late exam materials, Incorrect exam papers, Forms request (BB, results entry), Exam date and time change	**E: singlesubjects@cityandguilds.com**
International awards Results, Entries, Enrolments, Invoices, Missing or late exam materials, Nominal roll reports	**E: intops@cityandguilds.com**
Walled Garden Re-issue of password or username, Technical problems, Entries, Results, e-assessment, Navigation, User/menu option, Problems	**E: walledgarden@cityandguilds.com**
Employer Employer solutions, Mapping, Accreditation, Development Skills, Consultancy	**T: +44 (0)121 503 8993** **E: business@cityandguilds.com**

Every effort has been made to ensure that the information contained in this publication is true and correct at the time of going to press. However, City & Guilds' products and services are subject to continuous development and improvement and the right is reserved to change products and services from time to time. City & Guilds cannot accept liability for loss or damage arising from the use of information in this publication.

If you have a complaint, or any suggestions for improvement about any of the services that City & Guilds provide, email: **feedbackandcomplaints@cityandguilds.com**

About City & Guilds

As the UK's leading vocational education organisation, City & Guilds is leading the talent revolution by inspiring people to unlock their potential and develop their skills. City & Guilds is recognised and respected by employers across the world as a sign of quality and exceptional training.

City & Guilds Group

The City & Guilds Group operates from three major hubs: London (servicing Europe, the Caribbean and Americas), Johannesburg (servicing Africa), and Singapore (servicing Asia, Australia and New Zealand). The Group also includes the Institute of Leadership & Management (management and leadership qualifications), City & Guilds Licence to Practice (land-based qualifications) and Learning Assistant (an online e-portfolio).

City & Guilds
5-6 Giltspur Street
London EC1A 9DE
www.cityandguilds.com

Get in touch

The City & Guilds Quality team are here to answer any queries you may have regarding your T Level Technical Qualification delivery.

Should you require assistance, please contact us using the details below:

Monday - Friday | 08:30 - 17:00 GMT

T: 0300 303 53 52

E: **technicals.quality@cityandguilds.com**

W: **www.cityandguilds.com/tlevels**

Web chat available **here**.

Copyright in this document belongs to, and is used under licence from, the Institute for Apprenticeships and Technical Education, © 2024.

'T-LEVELS' is a registered trade mark of the Department for Education.

'T Level' is a registered trade mark of the Institute for Apprenticeships and Technical Education.

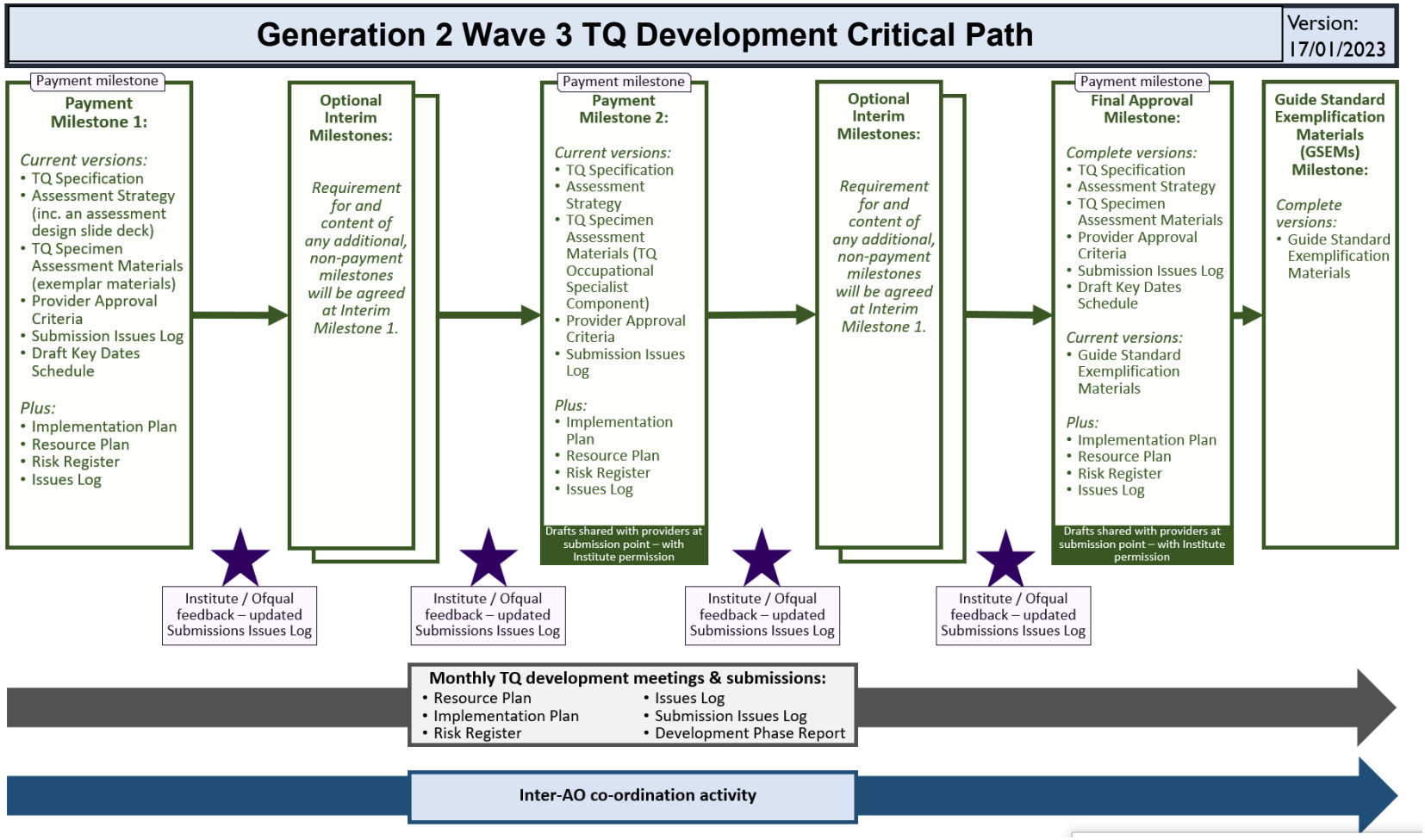
'Institute for Apprenticeships & Technical Education' and logo are registered trade marks of the Institute for Apprenticeships and Technical Education.

The T Level Technical Qualification is a qualification approved and managed by the Institute for Apprenticeships and Technical Education.

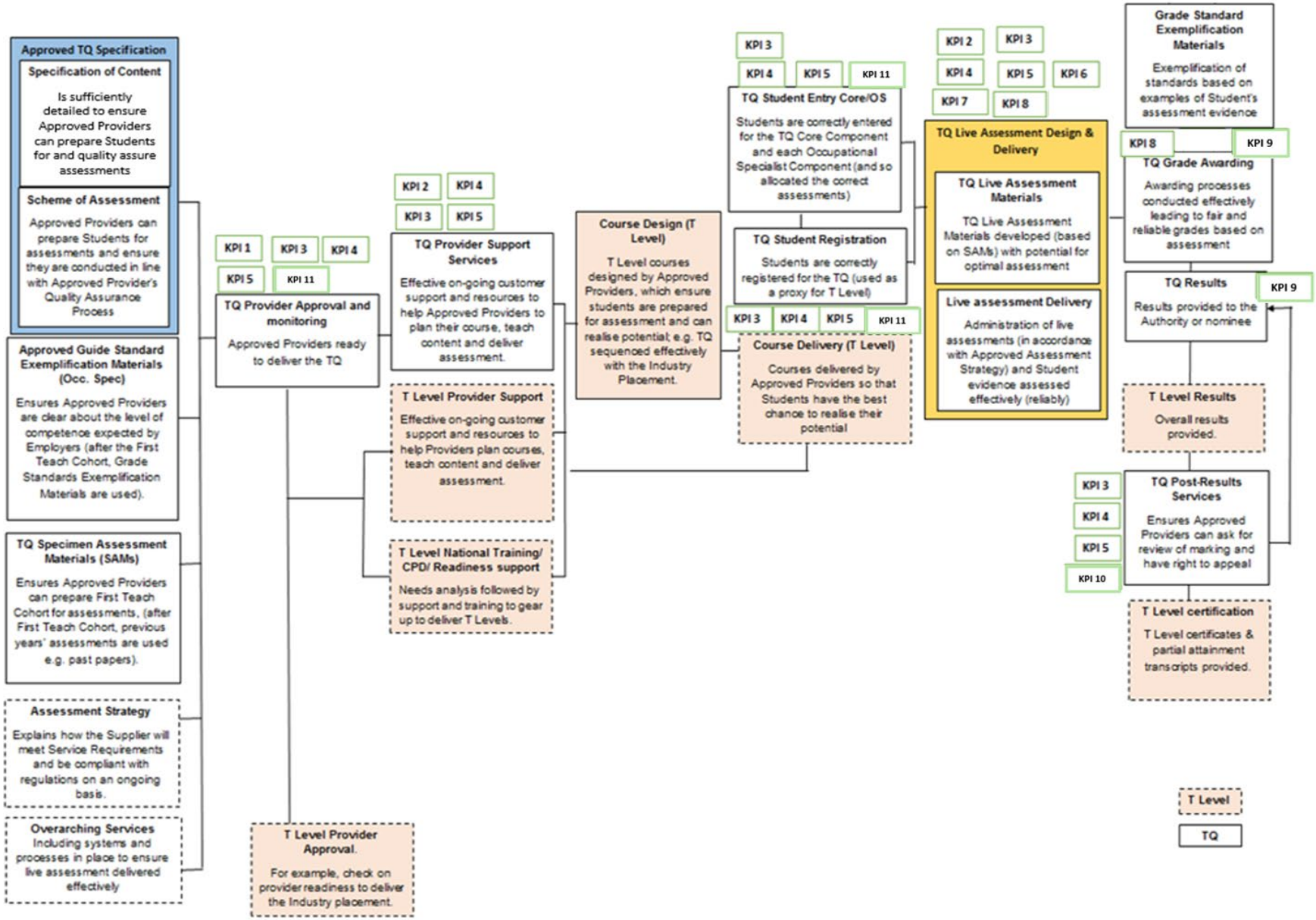
The City & Guilds of London Institute is authorised by the Institute for Apprenticeships and Technical Education to develop and deliver this Technical Qualification.

City & Guilds is a registered trade mark of The City & Guilds of London Institute.

ANNEX 4 – TQ CRITICAL PATH DIAGRAM



Annex 4 Critical Path – Delivery



ANNEX 5 – INDICATIVE KEY DATES SCHEDULE[9]

To meet the requirements of Schedule 4 (*Co-operation*) the Supplier, working with other T Level Awarding Organisations, will need to produce a Key Dates Schedule, which secures the efficient and effective delivery of each assessment series for the TQ. Within the Key Dates Schedule, the deadline for submitting TQ Student registration data to the Authority must be in November in the first year of study. For a summer assessment series results must be issued on or no later than the date A level results are issued.

For a summer assessment series the key dates could include but are not restricted to:

Key Date	**Description**	**Assessment series**
November (Yr1)	Deadline for submitting TQ Student registration data to the Authority	All
3rd week Feb	Deadline for entries for assessments by Approved Providers	June
3rd week Feb	Final date for submitting Reasonable Adjustment requests to the Supplier by Approved Providers	June
4th week Feb	Assessment timetable issued	June
2nd week May	First date for submitting Special Consideration requests to the Supplier	June
2nd week May-3rd week June	Assessments take place	June
3rd week August	Restricted release of T Level results to Approved Providers by the Authority	June
3rd week August	Release of results to Students by the Authority	June

[9] This is an indicative Key Dates Schedule. Exact dates and further key dates will need to be agreed between the Supplier and other T Level Awarding Organisations through Schedule 4 (*Co-operation*) and the resulting Key Dates Schedule must be Approved by the Authority.

Key Date	Description	Assessment series
3rd week August	Release of more detailed TQ results data from the Supplier	June
3rd week September	Appeals and assessment review requests made	June
4th week Nov	T Level certificates and statements of achievement issued by the Department (or the function may be delegated to the Authority)	All

ANNEX 6 – TQ CONTENT UPDATING SCHEDULE

TQ Content Updating Schedule: Inclusive TQ Changes

Schedule Date	Activity
By end November (Academic Year X[10]-1)	Where the Authority carries out an annual review contemplated by clause 8.4, the Authority shall (where the Authority considers that the outcome of that review gives rise to any one or more Inclusive TQ Changes that the Authority requires to be implemented in accordance with this TQ Content Updating Schedule) submit to the Supplier an annual guidance note setting out such Inclusive TQ Changes.
December to February (Academic Year X-1)	The Supplier shall reflect any Inclusive TQ Changes arising out of the relevant annual guidance note (and any additional updates the Supplier proposes should be included as part of the annual review) in the Approved Initial TQ Deliverables or the TQ Deliverables (as the case may be) and/or any other Products and/or documents associated with the TQ (as applicable).
By end February (Academic Year X-1)	The Supplier shall submit the relevant Approved Initial TQ Deliverables, TQ Deliverables, Products and/or documents (as the case may be) as amended to reflect the Inclusive TQ Changes in question to the Authority for agreement.
March (Academic Year X-1)	(a) The Authority shall either: • confirm to the Supplier its agreement to the relevant amended Approved Initial TQ Deliverables, TQ Deliverables, Products and/or documents; or • notify the Supplier that the whole or part of such amended Approved Initial TQ Deliverables, TQ Deliverables, Products and/or documents are not agreed (and provide details of the comments and/or objections that the Authority has in relation to such documents). (b) The Supplier shall (as soon as reasonably practicable following receipt of the Authority's notice) make such amendments to the whole or relevant part (as the case may be) of the Approved Initial TQ Deliverables, TQ Deliverables, Products and/or documents as are necessary to address any comments and/or objections

[10] Where Academic Year X shall be the Academic Year in which the agreed amended documents reflecting the relevant Inclusive TQ Changes shall (where applicable) be implemented by Approved Providers for the new Cohort of Students.

	of the Authority and resubmit such amended documents to the Authority for agreement, to which the provisions of paragraph (a) (immediately above) shall apply.
The earlier of the end of March (Academic Year X-1) and (where applicable) the date of agreement by the Authority to the relevant amended documents	The Supplier shall make available any agreed amended Approved Initial TQ Deliverables or TQ Deliverables and (where applicable) any Products and/or documents to Approved Providers and facilitate the implementation by Approved Providers of such amended Approved Initial TQ Deliverables, TQ Deliverables, Products and/or documents, provided always that where part of any such amended document is subject to further amendment (as required by the Authority pursuant to paragraph (a) above), the Supplier shall not (unless otherwise agreed with the Authority) make any part of that relevant Approved Initial TQ Deliverable, TQ Deliverable, Product or document available to Approved Providers until the Supplier has made such amendments as are necessary to address the comments and/or objections of the Authority referred to in paragraph (a) above and the Authority has either confirmed its agreement to the resubmitted document or notified the Supplier that such document (containing only those amendments that have been agreed by the Authority) may be made available to Approved Providers.
September (Academic Year X)	Any agreed amended Approved Initial TQ Deliverables or TQ Deliverables and (where applicable) any Products and/or documents shall be implemented by Approved Providers for the new Cohort of Students.

TQ Content Updating Schedule: Exclusive TQ Changes

Schedule Date	**Activity**
End May (Academic Year X[11]-2)	Where the Authority carries out an annual review contemplated by clause 8.4, the Authority shall (where the Authority considers that the outcome of that review gives rise to any one or more Exclusive TQ Changes that the Authority requires to be implemented in accordance with this TQ Content Updating Schedule) submit to the Supplier an annual guidance note setting out such Exclusive TQ Changes.
June (Academic Year X-2) to September (Academic Year X-1)	The Supplier shall reflect any Exclusive TQ Changes arising out of the relevant annual guidance note in the Approved Initial TQ Deliverables or the TQ Deliverables (as the case may be) and/or any other Products and/or documents associated with the TQ (as applicable).

[11] Where Academic Year X shall be the Academic Year in which the agreed amended documents reflecting the relevant Exclusive TQ Changes shall (where applicable) be implemented by Approved Providers for the new Cohort of Students.

By End September (Academic Year X-1)	The Supplier shall submit the relevant Approved Initial TQ Deliverables, TQ Deliverables, Products and/or documents (as the case may be) as amended to reflect the Exclusive TQ Changes in question to the Authority for DfE Approval.
October to November (Academic Year X-1)	(a) The Authority shall either: • confirm to the Supplier that the relevant amended Approved Initial TQ Deliverables, TQ Deliverables, Products and/or documents meet the requirements for DfE Approval; or • notify the Supplier that the whole or part of such amended Approved Initial TQ Deliverables, TQ Deliverables, Products and/or documents do not meet the requirements for DfE Approval (and provide details of the comments and/or objections that the Authority has in relation to such documents). (b) The Supplier shall (as soon as reasonably practicable following receipt of the Authority's notice) make such amendments to the whole or relevant part (as the case may be) of the Approved Initial TQ Deliverables, TQ Deliverables, Products and/or documents as are necessary to address any comments and/or objections of the Authority and resubmit such amended documents to the Authority for DfE Approval, to which the provisions of paragraph (a) (immediately above) shall apply.
The earlier of the beginning of December (Academic Year X-1) and (where applicable) the date of DfE Approval being achieved in relation to the relevant amended documents	The Supplier shall make available any amended Approved Initial TQ Deliverables or TQ Deliverables and (where applicable) any Products and/or documents that have achieved DfE Approval to Approved Providers and facilitate the implementation by Approved Providers of such amended Approved Initial TQ Deliverables, TQ Deliverables, Products and/or documents, provided always that where part of any such amended document is subject to further amendment (as required by the Authority pursuant to paragraph (a) above), the Supplier shall not (unless otherwise agreed with the Authority) make any part of that relevant Approved Initial TQ Deliverable, TQ Deliverable, Product or document available to Approved Providers until the Supplier has made such amendments as are necessary to address the comments and/or objections of the Authority referred to in paragraph (a) above and the Authority has either confirmed that such amended resubmitted document has achieved DfE Approval or notified the Supplier that such document (containing only those amendments on which the Authority would be prepared to award DfE Approval) may be made available to Approved Providers.

September (Academic Year X)	Any amended Approved Initial TQ Deliverables or TQ Deliverables and (where applicable) any Products and/or documents that have achieved DfE Approval shall be implemented by Approved Providers for the new Cohort of Students.

ANNEX 7 – INITIAL DEVELOPMENT MILESTONES

This Annex sets out the submission requirements for the three Milestones at which the Authority will render initial, interim and final payments of the Development Charge.

Further interim submission Milestones may be added to this timetable where these are agreed as part of the agreement at Interim Milestone 1. This decision will be influenced by the quantum of change to the TQ that is approved by the Authority at that initial Milestone.

In the event of any conflict and/or inconsistency between the provisions of this Annex 7 and the provisions of Annex 4 (*TQ Critical Path Diagram*) to this Service Requirements, the provisions of this Annex 7 shall prevail.

Milestone	**Submission Date**	**Submission**
Interim Milestone 1	12 June 2026 (indicative)	**TQ Specification.** A draft version of the complete TQ Specification, which takes into account any comments, objections, recommendations and/or requirements notified by the Authority to the Supplier in respect of the Supplier's Response and/or arising out of or in connection with the submission of such Product at any previous TQ Development Meeting, and which includes: (a) a complete Specification of Content for all Components which fully covers the Former Supplier's TQ Specification and, if relevant, the Outline Content and any proposed changes to the Former Supplier's Specification of Content; (b) the proposed Guided Learning hours for each Component; (c) a draft of the Scheme of Assessment which: (i) specifies the assessment objectives for each part of the TQ Core Component; (ii) defines each assessment method to be used for each Component;

Milestone	Submission Date	Submission
		(iii) specifies indicative weightings for the assessments within the Components. **TQ Specimen Assessment Materials.** Sample indicative assessment tasks, and assessment criteria/mark schemes which takes into account any comments, objections, recommendations and/or requirements notified by the Authority to the Supplier in respect of the Supplier's Response and/or arising out of or in connection with the submission of such Product at any previous TQ Development Meeting for: (d) each part of the TQ Core Component; and (e) at least one Occupational Specialist Component. The submission must support the exemplification of the proposals within the assessment design walkthrough and include as a minimum the following: (f) exemplar questions that cover the variety of questions types and accompanying mark scheme including indicative content; (g) exemplar tasks for one example of an Employer Set Project together with an exemplar mark scheme and indicative content; and (h) exemplar tasks for one Occupational Specialist Component Assignment together with an exemplar mark scheme including indicative content. **Assessment Strategy.** A draft of the Assessment Strategy, which contains a clear explanation of the structure of the assessment design and strategy for example, the proposed number of assessments and/or assessment tasks, the duration of each and the

Milestone	Submission Date	Submission
		conditions under which each would be taken. For the Employer Set Project and the Occupational Specialisms, the draft of the Assessment Strategy should also set out the proposed approach to marking and how students' application of skills and knowledge will be assessed. The draft of the Assessment Strategy shall meet (so far as is reasonably practicable having regard to the timing of Interim Milestone 1) all of the requirements of the Product Description for the Assessment Strategy and take into account any comments, objections, recommendations and/or requirements notified by the Authority to the Supplier in respect of the Supplier's Response and/or arising out of or in connection with the submission of such Product at any previous TQ Development Meeting. The Submission must include an: **Assessment design slide deck.** A slide deck which contains a clear explanation of the structure of the assessment design and explanation of the design decision rationale for the TQ Core Component and Occupational Specialist Component. The slide deck must contain the structural elements and rationale in accordance with any guidance on the Service Requirements issued by the Authority and take into account any comments, objections, recommendations and/or requirements notified by the Authority to the Supplier in respect of the Supplier's Response and/or arising out of or in connection with the submission of such Product at any previous TQ Development Meeting. The assessment design slide deck will be used to facilitate a walkthrough with the Authority shortly following the submission. **Implementation and Delivery Plan.** A complete version of the Implementation and Delivery Plan, which meets (so far as is reasonably practicable having regard to the timing of Interim Milestone 1) all of the requirements of the Product Description for the Implementation and Delivery Plan and which also takes in account any comments, objections, recommendations and/or requirements notified by the Authority to the Supplier in respect of the Supplier's Response and/or arising out of or in connection with the submission of such Product at any previous TQ Development Meeting

Milestone	Submission Date	Submission
		Resource Plan. A complete version of the Resource Plan, which meets (so far as is reasonably practicable having regard to the timing of Interim Milestone 1) all of the requirements of the Product Description for the Resource Plan and which also takes into account any comments, objections, recommendations and/or requirements notified by the Authority to the Supplier in respect of the Supplier's Response and/or arising out of or in connection with the submission of such Product at any previous TQ Development Meeting. **Provider Approval Criteria.** A complete version of the Provider Approval Criteria, which meets (so far as is reasonably practicable having regard to the timing of Interim Milestone 1) all of the requirements of the Product Description for the Provider Approval Criteria and which also takes into account any comments, objections, recommendations and/or requirements notified by the Authority to the Supplier in respect of the Supplier's Response and/or arising out of or in connection with the submission of such Product at any previous TQ Development Meeting. **Risk Register and Issues Log.** An updated and complete version of each of the Risk Register and the Issues Log which meet all of the requirements of the Product Description for the Risk Register or Issues Log (as applicable) and which take into account any comments, objections, recommendations and/or requirements notified by the Authority to the Supplier in respect of the Supplier's Response and/or arising out of or in connection with the submission of such Product at any previous TQ Development Meeting. **Submission Issues Log.** An updated Submission Issues Log which meets all of the requirements of the Product Description for the Submission Issues Log, and which explains how each issue raised by the Authority to date has been dealt with in this Submission. **Employer and Provider Engagement Strategy.** A complete version of the Employer and Provider Engagement Strategy, which meets (so far as is reasonably practicable having

Milestone	Submission Date	Submission
		regard to the timing of Interim Milestone 1) all of the requirements of the Product Description for the Employer and Provider Engagement Strategy and which also takes into account any comments, objections, recommendations and/or requirements notified by the Authority to the Supplier in respect of the Supplier's Response and/or arising out of or in connection with the submission of such Product at any previous TQ Development Meeting.
Interim Milestone 2	25 September 2026 (indicative)	**TQ Specification.** A complete version of the TQ Specification, which meets all of the requirements of the Product Description for the TQ Specification and which also takes into account any comments, objections, recommendations and/or requirements notified by the Authority to the Supplier at Interim Milestone 1 and/or arising out of or in connection with the submission of such Product at any previous TQ Development Meeting. **TQ Specimen Assessment Materials and accompanying Assessment Guidance for Providers.** A complete version of the TQ Occupational Specialist Component and each part of the TQ Core Component, and accompanying Assessment Guidance for Providers which meet all of the requirements of the Product Descriptions and which also take into account any comments, objections, recommendations and/or requirements notified by the Authority to the Supplier at Interim Milestone 1 and/or arising out of or in connection with the submission of such Product at any previous TQ Development Meeting. **Assessment Strategy.** A complete version of the Assessment Strategy, which meets all of the requirements of the Product Description for the Assessment Strategy and which also takes into account any comments, objections, recommendations and/or requirements notified by the Authority to the Supplier at Interim Milestone 1 and/or arising out of or in connection with the submission of such Product at any previous TQ Development Meeting. **Implementation and Delivery Plan.** A complete version of the Implementation and Delivery Plan, which meets all of the requirements of the Product Description for the Implementation and Delivery Plan and which also takes into account any comments, objections,

Milestone	Submission Date	Submission
		recommendations and/or requirements notified by the Authority to the Supplier at Interim Milestone 1 and/or arising out of or in connection with the submission of such Product at any previous TQ Development Meeting. **Resource Plan.** A complete version of the Resource Plan, which meets all of the requirements of the Product Description for the Resource Plan and which also takes into account any comments, objections, recommendations and/or requirements notified by the Authority to the Supplier at Interim Milestone 1 and/or arising out of or in connection with the submission of such Product at any previous TQ Development Meeting. **Provider Approval Criteria.** A complete version of the Provider Approval Criteria which meets (so far as is reasonably practicable having regard to the timing of Interim Milestone 4) all of the requirements of the Product Description for the Provider Approval Criteria and which also takes into account any comments, objections, recommendations and/or requirements notified by the Authority to the Supplier at Interim Milestone 1 and/or arising out of or in connection with the submission of such Product at any previous TQ Development Meeting. **Risk Register and Issues Log.** A complete version of each of the Risk Register and the Issues Log which meet all of the requirements of the Product Description for the Risk Register or Issues Log (as applicable) and which also take into account any comments, objections, recommendations and/or requirements notified by the Authority to the Supplier at Interim Milestone 1 and/or arising out of or in connection with the submission of such Product at any previous TQ Development Meeting. **Submission Issues Log.** An updated Submission Issues Log which meets all of the requirements of the Product Description for the Submission Issues Log, and which explains how each issue raised by the Authority to date has been dealt with in this Submission.

Milestone	Submission Date	Submission
		Employer and Provider Engagement Strategy. A complete version of the Employer and Provider Engagement Strategy, which meets all of the requirements of the Product Description for the Employer and Provider Engagement Strategy and which also takes into account any comments, objections, recommendations and/or requirements notified by the Authority to the Supplier at Interim Milestone 1 and/or arising out of or in connection with the submission of such Product at any previous TQ Development Meeting.
Final Approval Milestone	20 November 2026 (indicative)	**TQ Specification**. A complete version of the TQ Specification, which meets all of the requirements of the Product Description for the TQ Specification and which also takes into account any comments, objections, recommendations and/or requirements notified by the Authority to the Supplier at any previous Interim Milestone and/or arising out of or in connection with the submission of such Product at any previous TQ Development Meeting. **TQ Specimen Assessment Materials and accompanying Assessment Guidance for Providers.** A complete version of the TQ Specimen Assessment Materials, and accompanying Assessment Guidance for Providers which meet all of the requirements of the Product Descriptions and which also take into account any comments, objections, recommendations and/or requirements notified by the Authority to the Supplier at any previous Interim Milestone and/or arising out of or in connection with the submission of such Product at any previous TQ Development Meeting. **Assessment Strategy.** A complete version of the Assessment Strategy, which meets all of the requirements of the Product Description for the Assessment Strategy and which also takes into account any comments, objections, recommendations and/or requirements notified by the Authority to the Supplier at any previous Interim Milestone and/or arising out of or in connection with the submission of such Product at any previous TQ Development Meeting. **Implementation and Delivery Plan.** A complete version of the Implementation and Delivery Plan, which meets all of the requirements of the Product Description for the Implementation

Milestone	Submission Date	Submission
		and Delivery Plan and which also takes into account any comments, objections, recommendations and/or requirements notified by the Authority to the Supplier at any previous Interim Milestone and/or arising out of or in connection with the submission of such Product at any previous TQ Development Meeting. **Resource Plan.** A complete version of the Resource Plan, which meets all of the requirements of the Product Description for the Resource Plan and which also takes into account any comments, objections, recommendations and/or requirements notified by the Authority to the Supplier at any previous Interim Milestone and/or arising out of or in connection with the submission of such Product at any previous TQ Development Meeting. **Provider Approval Criteria**. A complete version of the Provider Approval Criteria, which meets all of the requirements of the Product Description for the Provider Approval Criteria and which also takes into account any comments, objections, recommendations and/or requirements notified by the Authority to the Supplier at any previous Interim Milestone and/or arising out of or in connection with the submission of such Product at any previous TQ Development Meeting. **Risk Register and Issues Log.** A complete version of each of the Risk Register and the Issues Log which meet all of the requirements of the Product Description for the Risk Register or Issues Log (as applicable) and which also take into account any comments, objections, recommendations and/or requirements notified by the Authority to the Supplier at any previous Interim Milestone and/or arising out of or in connection with the submission of such Product at any previous TQ Development Meeting. **Submission Issues Log.** An updated Submission Issues Log which meets all of the requirements of the Product Description for the Submission Issues Log, and which explains how each issue raised by the Authority to date has been dealt with in this Submission. **Employer and Provider Engagement Strategy.** A complete version of the Employer and

Milestone	Submission Date	Submission
		Provider Engagement Strategy, which meets all of the requirements of the Product Description for the Employer and Provider Engagement Strategy and which also takes into account any comments, objections, recommendations and/or requirements notified by the Authority to the Supplier at any previous Interim Milestone and/or arising out of or in connection with the submission of such Product at any previous TQ Development Meeting. **Draft Key Dates Schedule.** An updated version of the Key Dates Schedule.
Guide Standard Exemplification Materials	29 January 2027 (Indicative)	**Exemplification Materials.** A complete version of the Guide Standard Exemplification Materials for each Occupational Specialist Component, which meet all of the requirements of the Product Description for the Guide Standard Exemplification Materials and which also take into account any comments, objections, recommendations and/or requirements notified by the Authority to the Supplier at any Milestone and/or arising out of or in connection with the submission of such Product at any previous TQ Development Meeting or any other feedback.

ANNEX 8

NOT USED

ANNEX 9 – MANAGEMENT INFORMATION

Information/ report	Description
Development Phase Report	In the period prior to DfE Approval, the Supplier shall prepare and provide a dashboard report (in such form as the Authority may specify from time to time) summarising: • the Supplier's progress against and compliance (to date) with the Implementation and Delivery Plan (including progress against any milestones (including any Milestones)),the Resource Plan; and the Entry Transition Plan; • how the Supplier is managing any risks and issues identified in the updated Risk Register and/or Issues Log, including the Supplier's progress against any steps required by the Authority to be carried out by the Supplier in accordance with paragraph 11.1.2 of Part 1 of this Service Requirements; • how Employers (and other end users, including higher education providers) have been consulted in relation to the design of the TQ; and • such other information as the Authority may reasonably require from time to time.
Operational Delivery Report	**Monthly Performance Report** The Supplier shall prepare and provide a dashboard report (in such form as the Authority may specify from time to time) summarising: • the Supplier's progress against and compliance (to date) with the Implementation and Delivery Plan, the Resource Plan, the Entry Transition Plan, and the Key Dates Schedule for the relevant Academic Year; • how the Supplier is managing any risks and issues identified in the updated Risk Register and/or Issues Log, including the Supplier's progress against any steps required by the Authority to be carried out by the Supplier in accordance with paragraph 11.1.2 of Part 1 of this Service Requirements; • for each KPI in respect of which the Performance Monitoring Period ends in that Contract Month: o the actual performance achieved by the Supplier for that KPI during that Performance Monitoring Period; and o details of any Service Failure that occurred in respect of that KPI, together with the proposed KPI Improvement Plan;

Information/ report	Description
	• details of the Supplier's progress against each KPI Improvement Plan that the Supplier is (or should be, if it was complying with its obligations under this Contract) carrying out and/or completing during the relevant Contract Month; • the Supplier's progress in carrying out any Designated Action notified by the Authority pursuant to clause 14.2 (*What may happen if there are issues with your provision of the Services*); • without prejudice to clause 14.1 (*What may happen if there are issues with your provision of the Services*), any Critical Service Failures occurring in the relevant Contract Month; • any areas of the Services (and/or the performance of the Services) where the Supplier reasonably considers that there could be innovations and/or improvements in the delivery and/or performance of the Services, including key risks and potential benefits; • progress in implementing, and the actual impact of, any innovations and/or improvements previously notified by the Supplier; • evidence demonstrating that the Supplier is achieving the overarching outcomes for each element of the Services, as set out in the first column of the Service Definitions Table; • the monitoring undertaken by the Supplier in accordance with paragraph 3.1.2 of Part 1 of this Service Requirements in the relevant Contract Month to include reporting on Provider usage of training, resources and other support materials made available by the Supplier; • any events, matters and/or circumstances referred to in paragraph 3.2 of Part 1 of this Service Requirements occurring in the relevant Contract Month, together with the progress (during the relevant Contract Month) of the Eligible Provider or Approved Provider (as the case may be) and the Supplier in taking the steps and/or actions referred to in paragraphs 3.3 and 3.4 of Part 1 of this Service Requirements; and • such other information as the Authority may reasonably require from time to time having regard to, amongst other things, the period in the Academic Year within which the relevant Contract Month falls. In relation to the assessment of the Supplier's performance against each KPI, the Supplier shall submit all such evidence (upon request by the Authority) as is referred to in the fifth column of the Table set out in Annex 1 to Schedule 15 (*Monitoring of Performance*), other than where such evidence is stated to be obtained via a survey. Notwithstanding the evidence that the Supplier is required to provide (referred to in the fifth column of the Table set out in Annex 1 to Schedule 15

Information/ report	Description
	(*Monitoring of Performance*)) to enable the assessment of the Supplier's performance against each KPI, the Supplier shall also include within this Monthly Performance Report the following data and information (broken down by KPI): • KPI 1 (Provider approval and monitoring): o the number of Eligible Providers applying to become Approved Providers, broken down into those Eligible Providers that are seeking a full approval and those Eligible Providers that are seeking to extend an existing approval; o the number and details of Eligible Providers that have submitted an application to become an Approved Provider and who have (i) not become an Approved Provider and (ii) become an Approved Provider; o the number and details of Eligible Providers that are awaiting a decision on their application to become an Approved Provider; o the number and details of Eligible Providers in respect of which a decision has been made within 30 Working Days of receipt by the Supplier of the relevant application; and o details of the actual monitoring of Approved Providers undertaken by the Supplier in the relevant Contract Month. • KPI 2 (Approved Provider preparedness).[12] • KPI 3 (Queries from Eligible Providers and Approved Providers): o the number of letters and other forms of electronic correspondence received (broken down by letter and each other form of electronic correspondence) and number of telephone calls received, in each case, in the relevant Contract Month; o a summary of key topics or queries being asked; o details of the percentage of such queries being resolved within the Target Service Level (broken down by letter (and each other form of electronic correspondence) and telephone calls); and o details of any repeat queries (including where any such queries have been raised and/or resolved in any previous Contract Month). • KPI 4 (Complaints): o the number of complaints received in the relevant Contract Month; o a summary of the nature of each such complaint;

[12] To be measured by a survey undertaken or commissioned by the Authority.

Information/ report	Description
	○ details of the percentage of such complaints being resolved within the applicable Target Service Level; ○ details of why any complaints that have not been resolved within the applicable Target Service Level have not been so resolved; and ○ details of any repeat complaints or further complaints linked to a previous complaint (including where any such complaints have been made and/or resolved in any previous Contract Month). • KPI 5 (Provider satisfaction).[13] • KPI 6 (Numbers of appropriately qualified and trained Assessors (and (where applicable) Moderators)): ○ details of the actual number of Assessors (and (where applicable) Moderators) that have been recruited, trained and retained in the relevant Contract Month; and ○ details of the number of Assessors (and (where applicable) Moderators) contemplated by the relevant Contract Month (or in line with the trajectory (as the case may be)) as set out in the then current Implementation and Delivery Plan and/or Resource Plan. The Authority may require the Supplier to provide this data more frequently than monthly during the key assessment delivery period. • KPI 7 (Quality of TQ Live Assessment Materials): ○ a summary of activities completed in the relevant Contract Month relating to the development of the TQ Live Assessment Materials, as contemplated in the Assessment Strategy and/or the Implementation Plan; ○ a summary of the actual quality assurance activity undertaken by the Supplier in the relevant Contract Month; ○ a summary of the quality assurance activity (if any) that is contemplated in the Assessment Strategy as being undertaken by the Supplier in or during (as the case may be) the relevant Contract Month; and ○ details of any errors reported in the TQ Live Assessment Materials in the relevant Contract Month. • KPI 8 (Student assessment evidence assessed and processed): ○ a summary of the actual quality assurance activity undertaken by the Supplier to verify the quality of the processing of Student assessment

[13] To be measured by a survey undertaken or commissioned by the Authority.

Information/ report	Description
	evidence for awarding in the relevant Contract Month, together with evidence that such processing has been undertaken accurately and consistently; o a summary of the quality assurance activity (if any) that is contemplated in the Assessment Strategy as being undertaken by the Supplier to verify the quality of the processing of Student assessment evidence for awarding in or during (as the case may be) the relevant Contract Month; o details of the cumulative volume and percentages of Student assessment evidence processed (broken down to the TQ Core Component and each Occupational Specialist Component) by the end of the relevant Contract Month, as against the planned trajectory and dates in the Implementation and Delivery Plan applicable to that Contract Month; and o details of any errors, inaccuracies and/or inconsistencies identified in any processed Student assessment evidence in the relevant Contract Month. • KPI 9 (Student assessment results submitted by relevant date): o details of the cumulative volume and percentages of Student results submitted by the Supplier to the Authority (or the Authority's nominee (as applicable)) by the end of the relevant Contract Month; and o details of the cumulative volume and percentages of Student results envisaged in the Implementation and Delivery Plan to be submitted by the Supplier to the Authority (or the Authority's nominee (as the case may be)) by the end of the relevant Contract Month. • KPI 10 (Post-Results Services): o the total volume of Post-Results Services (broken down by service) and percentage of each Post-Results Service (as against total Post-Results Services) undertaken by the Supplier in the relevant Contract Month; o detail of the timing of delivery of Post-Results Services against the applicable timeframes in Annex 10 (*Additional Services*) of this Service Requirements as contemplated by the Supplier's Response; and o detail of the proportion of remarks and Appeals which have resulted in grade increases or decreases (and summary of key reasons for any changes made). • KPI 11 (Submission of information):

Information/ report	Description
	○ details of the Management Information, required or requested Products including Key Materials and/ or Ancillary Materials submitted in respect of the relevant Contract Month; ○ details of the Management Information, required or requested Products including Key Materials and/ or Ancillary Materials anticipated to be submitted in respect of the relevant Contract Month; and ○ details of any errors, inaccuracies and/or inconsistencies identified in any Management Information, required or requested Products including Key Materials and/ or Ancillary Materials submitted in respect of the relevant Contract Month (and/or any previous Contract Month). **Ongoing Development Services Report** A dashboard report (in such form as the Authority may specify from time to time) summarising: • the Supplier's progress against and compliance (to date) with the TQ Content Updating Schedule (including progress against any milestones); • any proposed amendments and/or updates made to any Product during the relevant Contract Month pursuant to paragraphs 2.5 and/or 2.6 of Part 1 of this Service Requirements; and • such other information as the Authority may reasonably require from time to time. **Annual Services Report** By the end of August each year, a high level overview of the Supplier's assessment of its performance during that Academic Year, summarising: • the key successes and areas for improvement in the delivery of the Services and/or the TQ; • in respect of the assessment cycles in that Academic Year, what important lessons were learned and how these will be addressed in following assessment cycles; • the key issues for the next following Academic Year; • how Employers have been consulted in relation to (and been involved in the design and delivery of) TQ assessment; • performance against the Social Value commitments under paragraph 13.1 (*Social Value Commitments*);

Information/ report	Description
	• activity undertaken as required by Schedule 4 (*Co-operation*); and • (where appropriate), the preparations for handover at the end of the Term. The Supplier shall also provide an updated Exit Plan in accordance with paragraph 2 of Schedule 12 (*Exit Management*). **Annual Penetration Testing Report** By the end of August each year, unless otherwise agreed by the Authority in writing, a summary of: • the Supplier's findings of independent penetration testing undertaken to test the security of any IT systems and hosting environments that are used to handle, store or process DfE Data; and • details of any necessary remedial works required as a result of such penetration testing.
Student registrations and Student entries (as referred to in paragraph 5 of Part 1 of this Service Requirements)	In relation to the Supplier's obligations in paragraph 5.4 of Part 1 of this Service Requirements, the Supplier shall report the following information and data (in a spreadsheet but in such form as the Authority may specify from time to time): • the number of Students registered for the TQ by Approved Provider (including late registrations and/or registration amendments and very late registrations and/or registration amendments (each as referred to in Annex 10 to this Service Requirements)): ○ in the current Academic Year; and ○ in aggregate (including for the current Academic Year) during the Term to date; • the number of Student entries by Approved Provider (including late entries and/or entry amendments and very late entries and/or entry amendments (each as referred to in Annex 10 to this Service Requirement)) in the relevant Academic Year for: ○ the TQ Core Component; and ○ each Occupational Specialist Component, together with the number of such entries in aggregate (including for the current Academic Year) for each of the TQ Core Component and each Occupational Specialist Component for all Academic Years during the Term to date;

Information/ report	Description
	• the number of withdrawn entries in the relevant Academic Year (by Approved Provider) for: o the TQ Core Component; and o each Occupational Specialist Component, together with the number of such withdrawals in aggregate (including for the current Academic Year) for each of the TQ Core Component and each Occupational Specialist Component for all Academic Years during the Term to date; and • such other information as the Authority may reasonably require from time to time.
TQ results (as referred to in paragraph 8 of Part 1 of this Service Requirements)	In relation to the Supplier's obligations in paragraph 8.2 of Part 1 of this Service Requirements, the Supplier shall report the following information and data (in such form as the Authority may specify from time to time) to the Authority (or the Authority's nominee (as applicable)): • results for each Student for the TQ Core Component and each Occupational Specialist Component that such Student has undertaken including: o Unique Learner Number; o name of Approved Provider; o Supplier name; o details of the TQ achieved; o the grade awarded for each Component; o date of achievement; • the outcome of any Appeals, Clerical Check, Expedited Review of Marking, Review of Marking, and/or Review of Moderation (each as referred to in Annex 10 (*Additional Services*) to this Service Requirements)), including details of the nature of the Appeal and a summary of the grounds for the Appeal; and • such other information as the Authority may reasonably require from time to time, to enable, amongst other things, the aggregation for T Level certification and inclusion in any Provider performance tables.
Additional Services	Data and information on the volume and nature of Additional Services being delivered to Approved Providers in the relevant Contract Month, in aggregate for the Academic Year to date and in aggregate (including for the current Academic Year) for all Academic Years during the Term to date (in spreadsheet format and in such form as the Authority may specify from time to time).

Information/ report	Description
Adjustments to Fees	In advance of its publication and availability to Approved Providers and in accordance with clause 4.13 (*Pricing and payments*), proposed adjustments to the Fees for the following Academic Year. In accordance with clause 4.13 (*Pricing and payments*), proposed adjustments to the Rate Card for the following Academic Year. The information for each of the proposed adjustments to the Fees and the proposed adjustments to the Rate Card will be submitted separately in a spreadsheet format (in such form as the Authority may specify from time to time) and will include any proposed annual percentage change in each proposed Fee and each proposed rate in the Rate Card, as such proposed change shall be calculated in accordance with clauses 4.12 and 4.13 (*Pricing and payments*).

ANNEX 10 – ADDITIONAL SERVICES

Additional Service	Additional Service Requirements
Access to Student assessment evidence	The Supplier shall within 10 Working Days following receipt of a request from the relevant Approved Provider, send (in such form as such Approved Provider shall request) to that Approved Provider a copy (including, as applicable, a PDF copy) of the relevant original marked Student assessment evidence or the whole or the relevant part (as the case may be) of the original TQ Live Assessment Materials to which the Student assessment evidence relates, to help the Approved Provider (or relevant Student (as the case may be)) decide whether to request a Review of Marking or Review of Moderation (each as defined below).
Additional Approved Provider support visit	The Supplier shall, as soon as reasonably practicable following receipt of a request from an Approved Provider, attend such Approved Provider's premises and provide such additional support as such Approved Provider reasonably requires, such as support in relation to misinterpretation of the TQ Specification.
Appeal	The Supplier shall: (i) within 20 Working Days following receipt of a request from an Approved Provider for an Appeal, undertake a detailed review of all information, data and/or documents relating to the Appeal, including the assessment evidence relating to the whole or the relevant part of a Cohort or an individual Student (as the case may be); and (ii) within 20 Working Days following receipt of a request from an Approved Provider for an Appeal hearing, hold an Appeal hearing in which the Approved Provider or its representative(s) can make submissions in relation to the Appeal, including (where applicable) explaining its dissatisfaction with any grade(s) awarded in relation to the whole or any part of a Cohort or an individual Student (as the case may be), following which the Supplier shall notify the Approved Provider of the outcome of such Appeal and, where necessary, adjust the marks awarded to the whole or any part of a Cohort or an individual Student (as the case may be) and issue new results to the Authority (or its nominee (as the case may be)), provided always that this Additional Service shall only be deemed to be an Additional Service in respect of which a Fee shall be payable by the Approved Provider if, following the determination of such Appeal, the Approved Provider is not successful in the Appeal.
Clerical Check	The Supplier within 10 Working Days following receipt of a request from an Approved Provider, undertake a detailed review of the relevant Student's assessment evidence and recount all of

Additional Service	Additional Service Requirements
	the marks that such Student has been awarded to ensure that the total number of marks awarded to such Student (leading to the award of the relevant grade(s)) equal the number of marks that should have been awarded to such Student and, where necessary, adjust the marks awarded to the Student, notify the Approved Provider of such adjustment and issue new results to the Authority (or its nominee (as the case may be)).
Expedited Review of Marking	The Supplier shall within 10 Working Days following receipt of a request from an Approved Provider, undertake an expedited Review of Marking (as defined below), provided always that this Additional Service shall only be deemed to be an Additional Service in respect of which a Fee shall be payable by the Approved Provider if, following the carrying out and completion of such an expedited Review of Marking, the grade(s) awarded to such Student is not changed.
Late entry or entry amendment	Where, following the entry deadline for the TQ Core Component and/or relevant Occupational Specialist Component specified in the Key Dates Schedule for the relevant Academic Year until the very late entry deadline for the TQ Core Component and/or relevant Occupational Specialist Component specified in the Key Dates Schedule for the relevant Academic Year, an Approved Provider requires a new Student to be entered for the TQ Core Component and/or relevant Occupational Specialist Component and/or an existing entry for a Student to be amended, the Supplier shall following receipt of a request from an Approved Provider no later than 20 Working Days prior to the commencement of the relevant assessment as determined in accordance with the relevant Key Dates Schedule, enter that Student for the TQ Core Component and/or relevant Occupational Specialist Component or amend that Student's entry for the TQ Core Component and/or relevant Occupational Specialist Component (as the case may be).
Late registration or registration amendment	Where, following the registration deadline for the TQ specified in the Key Dates Schedule for the relevant Academic Year until the very late registration deadline for the TQ specified in the Key Dates Schedule for the relevant Academic Year, an Approved Provider requires a new Student to be registered for the TQ and/or an existing registration for a Student to be amended, the Supplier shall following receipt of a request from an Approved Provider no later than 20 Working Days prior to the commencement of the relevant assessment as determined in accordance with the relevant Key Dates Schedule, register that Student for the TQ or amend that Student's registration for the TQ (as the case may be).
Retake	Where, in the period following the publication of the TQ results in accordance with paragraph 8 of Part 1 of this Service Requirements until two years after the end of the final Academic Year for the Cohort within which the relevant Student is included,

Additional Service	Additional Service Requirements
	an Approved Provider requests that a Student wishes to retake all or any of the assessments for: • the TQ Core Component - External Examination; • the TQ Core Component - Employer Set Project; and/or • an Occupational Specialist Component, the Supplier shall carry out and complete its obligations in paragraphs 6.1.3 (*TQ live assessment design and delivery*), 7 (*TQ grade awarding*), 8 (*TQ Results*) and 9 (*TQ Post Results Services*) (save to the extent that compliance with such obligations in that paragraph 9 (*TQ Post Results Services*) would otherwise require the performance of a further Additional Service and in respect of which the provisions applicable to that further Additional Service shall apply) in each case of Part 1 of this Service Requirements in respect of such Student.
Review of Marking	The Supplier shall within 25 Working Days following receipt of a request from an Approved Provider, undertake a detailed review of the relevant Student's assessment evidence alongside the TQ Live Assessment Materials applicable to such assessment evidence to ensure that the marking scheme has been complied with in full in relation to the marking of that Student's assessment evidence, provided always that this Additional Service shall only be deemed to be an Additional Service in respect of which a Fee shall be payable by the Approved Provider if, following the carrying out and completion of such review, the grade(s) awarded to such Student is not changed.
Review of Moderation	The Supplier shall within 25 Working Days following receipt of a request from an Approved Provider, undertake a detailed review of the relevant Cohort's assessment evidence alongside the assessment criteria within the Scheme of Assessment to ensure that the assessment criteria has been complied with in full in relation to the marking of that Cohort's assessment evidence, provided always that this Additional Service shall only be deemed to be an Additional Service in respect of which a Fee shall be payable by the Approved Provider if, following the carrying out and completion of such Review of Moderation, the grade(s) awarded to any Student is not changed.
Very late entry or entry amendment	Where, following the very late entry deadline for the TQ Core Component and/or relevant Occupational Specialist Component specified in the Key Dates Schedule for the relevant Academic Year until the date on which entries or amendments to entries finally closes for the TQ Core Component and/or relevant Occupational Specialist Component as specified in the Key Dates Schedule for the relevant Academic Year, an Approved Provider requires a new Student to be entered for the TQ Core Component and/or relevant Occupational Specialist Component and/or an existing entry for a Student to be amended, the Supplier shall (where reasonably practicable having regard to the nature of the assessment) following receipt of a request from an Approved

Additional Service	Additional Service Requirements
	Provider within the period not greater than 20 Working Days prior to the commencement of the relevant assessment as determined in accordance with the relevant Key Dates Schedule, enter that Student for the TQ Core Component and/or relevant Occupational Specialist Component or amend that Student's entry for the TQ Core Component and/or relevant Occupational Specialist Component (as the case may be).
Very late registration or registration amendment	Where, following the very late registration deadline for the TQ specified in the Key Dates Schedule for the relevant Academic Year until the date on which registration for the TQ finally closes as specified in the Key Dates Schedule for the relevant Academic Year, an Approved Provider requires a new Student to be registered for the TQ and/or an existing registration for a Student to be amended, the Supplier shall (where reasonably practicable having regard to the nature of the assessment), following receipt of a request from an Approved Provider within the period not greater than 20 Working Days prior to the commencement of the relevant assessment as determined in accordance with the relevant Key Dates Schedule, register that Student for the TQ or amend that Student's registration for the TQ (as the case may be).

ANNEX 11

Schedule for the submission of; Supplementary Specimen Assessment Materials; Employer Set Project Guide Exemplar Responses; and Employer Set Project Grade Exemplar Responses

Product	Description	Authority Submission Date	Publication date	Review point
Core Component	Supplementary Specimen Assessment Materials covering the TQ Core Component in full (comprising the External Examination and the Employer Set Project).	By the end of August prior to the first Academic Year of teaching	By end of October during the first Academic Year	Commencing during the second Academic Year of teaching, to be reviewed by the Supplier each and every Academic Year and re-submitted to the Authority to agree any changes by the end of October, for re-publication by the end of December.
Occupational Specialist Component(s)	Supplementary Specimen Assessment Materials covering the Occupational Specialist Component(s) in full.	By the end of March during the first Academic Year of teaching	By end of July during the first Academic Year	Commencing during the second Academic Year of teaching, to be reviewed by the Supplier each and every Academic Year and re-submitted to the Authority to agree any changes by the end of July, for re-publication by the end of October in the following Academic Year.
Employer Set Project Guide Exemplar Responses	Employer Set Project Guide Exemplar Responses covering the Employer Set Project, produced at grade A and grade E for each Employer Set Project, in consultation with Employers and accompanied by an explanatory commentary.	By the end of August prior to the first Academic Year of teaching	By end of October during the first Academic Year	
Employer Set Project Grade	Employer Set Project Grade Exemplar Responses covering the Employer Set Project,	By the end of October during	By end of December	Commencing during the third Academic Year of teaching, to be

Exemplar Responses	consisting of actual marked examples of Students' assessment evidence, selected after awarding, produced at grade A and grade E, for each Employer Set Project, in consultation with Employers and accompanied by an explanatory commentary.	the second Academic Year of teaching	during the second Academic Year	reviewed by the Supplier each and every Academic Year and re-submitted to the Authority to agree any changes by the start of September, for re-publication by the end of October.

* Where no students have sat an ESP, or no students have achieved a pass at grades A or E, on agreement with the Authority the Supplier may defer production of the Employer Set Project Grade Exemplar Responses to the next Academic Year.

Schedule 3

Implementation

The content for this Schedule is as below.

GEN 2 WAVE 3 MIR Implementation and Delivery Plan

GEN 2 WAVE 3 MIR Resource Plan

Schedule 3

Implementation and Delivery Plan

Schedule 3

Resource Plan

Schedule 4

Co-operation

1 Objective of the joint arrangements

1.1 The Supplier shall cooperate, coordinate and seek to agree certain arrangements with all third party Awarding Organisations, including the Former Supplier, involved in the delivery of the technical education qualification element of each T Level forming part of the T Levels Programme ("**T Level Awarding Organisations**") from time to time with the aim of:

1.1.1 ensuring the quality, consistency, efficiency and effectiveness of the T Levels Programme as a whole; and

1.1.2 in the interest of Students and Providers, streamlining administration relating to the T Levels Programme.

1.2 The Supplier shall ensure that all activities carried out by it under this Schedule appropriately take into account the views of each T Level Awarding Organisation (including T Level Awarding Organisations appointed subsequent and/or prior to the appointment of the Supplier) and do not risk or result in:

1.2.1 a disproportionate burden falling on any given T Level Awarding Organisation or on Providers; and/or

1.2.2 a disproportionate burden (whether by any act or omission on the part of the Supplier) on Providers and/or Students.

2 Joint arrangements

2.1 In particular, the Supplier shall (at its own cost):

2.1.1 attend a meeting convened by the Authority (on reasonable prior notice and at least once per calendar quarter) with all other T Level Awarding Organisations to discuss progress on coordination efforts including the activities set out below, and to make decisions relating to any outstanding areas of coordination;

2.1.2 in order to minimise the administrative burden on Providers, cooperate with all other T Level Awarding Organisations to coordinate and deliver an

efficient method of both regular and ad hoc inspections (on an ongoing basis) of the delivery by Approved Providers of the technical education qualification element of each T Level, to ensure that the relevant Approved Providers continue to meet the requirements of their Provider Approval by the Supplier and equivalent approval by other T Level Awarding Organisations, provided always that where, as a result of such cooperation and/or coordination it is necessary for the Supplier to amend and/or modify that part of the Supplier's Response to which the provisions of paragraph 3.1.2 of Part 1 of the Service Requirements apply, then the Supplier shall obtain Approval to such amendment and/or modification;

2.1.3 coordinate and seek to agree with all other T Level Awarding Organisations (at the earliest possible date) common rules and guidance applicable to the teaching and assessment of and provision of Post-Results Services for the technical education qualification element of each T Level with the aim of having aligned rules, guidance and Post-Results Services, where appropriate, across the T Levels Programme, addressing topics such as conducting examinations;

2.1.4 share information between T Level Awarding Organisations as necessary (subject to the relevant obligations on confidentiality in this Contract) to:

(i) facilitate the joint arrangements anticipated by this Schedule;

(ii) enable transfer of achievement of the TQ Core Component of a T Level between T Level Awarding Organisations; and

(iii) enable results analysis in respect of the Route of which the TQ forms part;

2.1.5 where possible, utilise systems in the delivery of the Services which are interoperable with those utilised by other T Level Awarding Organisations so as to facilitate the portability of the Services to any Future Supplier;

2.1.6 coordinate and seek to agree with all other T Level Awarding Organisations pre-assessment access arrangements for T Levels to ensure equivalence of approach between T Level Awarding Organisations;

2.1.7 adopt a common process and, where possible, system, to that used by other T Level Awarding Organisations for applications for access arrangements for T Levels to be made and considered for the benefit of Students;

2.1.8 coordinate and seek to agree with all other T Level Awarding Organisations a common process and approach and, where possible, system to that used by other T Level Awarding Organisations, to manage and/or facilitate Reasonable Adjustments and/or applications for Special Consideration to ensure equivalence of approach between T Level Awarding Organisations;

2.1.9 seek to agree between T Level Awarding Organisations a Key Dates Schedule, such schedule to be developed in consultation with the Department, GCE Awarding Organisations, Joint Council for Qualifications, Providers and UCAS and to be Approved by the Authority;

2.1.10 attend regular meetings (at least once per calendar month unless otherwise notified by the Authority) with all other T Level Awarding Organisations to discuss operational issues in relation to the T Level Programme;

2.1.11 in order to minimise the administrative burden on Providers, co-operate with the Former Supplier, where relevant, to facilitate a smooth transition during the Entry Transition Period; and

2.1.12 where notified by the Authority, work with other T Level Awarding Organisations responsible for TQs in the same Route with the aim to, where appropriate, harmonise the common TQ Core Component across that Route.

3 Disputes relating to joint arrangements

3.1 In the event the Supplier contends that it is unable to meet its obligations under this Schedule as a result of the action or inaction of one or more third party T Level Awarding Organisation, the Supplier shall seek to resolve such matter with the relevant T Level Awarding Organisation(s). In the event that the Supplier is unable to resolve such matter, having used its reasonable endeavours to do so, the Supplier shall promptly notify the Authority in writing with the relevant details including the steps taken to attempt to resolve the matter, and the Authority shall use its reasonable endeavours to promptly resolve such matter.

3.2 In the event that a third party T Level Awarding Organisation contends that it is unable to meet its joint arrangement obligations as a result of the action or inaction of the Supplier, then the Supplier shall comply with the reasonable instructions of the Authority in relation to such action or inaction.

3.3 Nothing in this Schedule (including any failure to agree any matters referred to in paragraph 2 of this Schedule) shall operate to reduce or otherwise diminish the Supplier's obligations and/or the Authority's rights under this Contract.

4 Reporting

4.1 The Supplier shall, on request by the Authority, promptly provide a written report to the Authority setting out its progress in achieving the joint arrangements set out in paragraph 2 of this Schedule.

Schedule 5

Supplier's Response

The content for this Schedule is as below.

GEN 2 WAVE 3 MIR AQ9.1-10.7 Supplier Responses

GEN 2 WAVE 3 MIR Assessment Delivery Case Study

GEN 2 WAVE 3 MIR Assessment Design and Development Provider Assessment Proposals

GEN 2 WAVE 3 MIR Dispute Resolution Procedure

GEN 2 WAVE 3 MIR Example Content Production Tracking

GEN 2 WAVE 3 MIR Post Results Services Process

GEN 2 WAVE 3 MIR Provider Approval Process

GEN 2 WAVE 3 MIR Provider Monitoring Process

GEN 2 WAVE 3 MIR Provider Support

GEN 2 WAVE 3 MIR Q10.1 Risk Management Framework

GEN 2 WAVE 3 MIR Q10.1 Risk Register

GEN 2 WAVE 3 MIR Q10.3 Internal Quality Assurance Process

GEN 2 WAVE 3 MIR Q10.6 Escalation Process Flow

GEN 2 WAVE 3 MIR Q10.6 Issues Log

GEN 2 WAVE 3 MIR Q10.6 Management and Governance

GEN 2 WAVE 3 MIR Q9.5 Employer Provider Engagement Strategy

GEN 2 WAVE 3 MIR Q9.6 Grading and Awarding Structure

GEN 2 WAVE 3 MIR Reporting Student's Registration Entry Results

GEN 2 WAVE 3 Pearson Clarifications

Schedule 5

Supplier Responses

Schedule 5

Assessment Delivery Case Study

Schedule 5

Assessment Design and Development Provider Assessment Proposals

Schedule 5

Dispute Resolution Procedure

Schedule 5

Example Content Production Tracking

Schedule 5

Post Results Services Process

Schedule 5

Provider Approval Process

Schedule 5

Provider Monitoring Process

Schedule 5

Provider Support

Schedule 5

Risk Management Framework

Schedule 5

Risk Register

Schedule 5

Internal Quality Assurance Process

Schedule 5

Escalation Process Flow

Schedule 5

Issues Log

Schedule 5

Management and Governance

Schedule 5

Employer and Provider Engagement Strategy

Schedule 5

Grading and Awarding Structure

Schedule 5

Reporting Student's Registration Entry Results

Schedule 6

Pricing Schedule

The content for this Schedule is as below.

GEN 2 WAVE 3 MIR Pricing Schedule

Schedule 6

Pricing Schedule

Schedule 6A

Adaptive Pricing

1. The Review Triggers

1.1 The Parties agree that the Entry Fee, as referred to in Schedule 6, shall be reviewed and may change, in the following two instances:

1.1.1 in or around December 2028, which shall be referred to as the Mid-Term Review; and

1.1.2 in the event that the Authority seeks to extend the Contract in accordance with clause 2.2 and 15.2 of the Contract, in or around December 2032, which shall be referred to as the Extension Review.

The Mid Term Review

2.1 On or around 1st December 2028 the Authority shall provide the Supplier with an updated projection of total learner volumes for the five Exclusive Cohorts under the Contract which shall be referred to as the Updated Projection.

2.2 The Updated Projection shall be calculated by the Authority by combining the actual learner volumes for Exclusive Cohorts one and two with the revised estimates for the remaining three Exclusive cohorts of the Contract.

Circumstances in which an Enhanced Entry Fee is permitted

2.3 Where the Updated Projection is calculated to be at least 15% less than the total learner volume contained in the original tender documents, which shall be referred to as the Initial Projection, the Authority shall determine a revision to the Entry Fee which shall be referred to as the Enhanced Entry Fee and will be in such amount as to enable the Supplier to retain the opportunity to achieve its % profit margin, as set out in Schedule 6, over the life of the original Contract and;

2.3.1 the Authority shall notify the Supplier in writing, on or before the 31st December 2028 of the Enhanced Entry Fee;

2.3.2 by no later than the end of February in the Academic Year prior to the Academic Year in which the Enhanced Entry Fee may be applied the Supplier shall notify the Authority in writing of its intention to substitute the Entry Fee with the

Enhanced Entry Fee, or such other Entry Fee not exceeding the Enhanced Entry Fee, as the case may be;

2.3.3 for the avoidance of doubt, any Entry Fee to be adopted by the Supplier pursuant to the provisions of this paragraph 2.3, will also incorporate any adjustments proposed by the Supplier under clause 4.12 of the Contract. The collective adjustments calculated in accordance with this paragraph 2.3 and or clause 4.12 will not exceed the Enhanced Entry Fee.

2.3.4 Any Enhanced Entry Fee shall apply for the Cohort for the Academic Year commencing 1 August 2029 and shall continue to apply to the Cohort for the Academic Year commencing 1 August 2030 and the Cohort for the Academic Year commencing 1 August 2031, and may be subject to later adjustments effected by the further application of clause 4.12 of the Contract.

Circumstances in which a Reduced Entry Fee will be required

2.4 Where the Updated Projection is calculated to be at least 15% more than the Initial Projection, the Authority shall determine a reduced Entry Fee which shall be referred to as the Reduced Entry Fee which will be in such amount as to enable the Supplier to retain the opportunity to achieve, but not exceed, its % profit margin, as set out in Schedule 6.

2.4.1 The Authority shall notify the Supplier in writing, on or before the 31st December 2028 of the Reduced Entry Fee;

2.4.2 For the avoidance of doubt, the Reduced Entry Fee will also incorporate any adjustments proposed by the Supplier under clause 4.12 of the Contract.

2.4.3 The Reduced Entry Fee shall apply for the Cohort for the Academic Year commencing 1 August 2029 and shall apply to the Cohort for the Academic Year commencing 1 August 2030 and the Cohort for the Academic Year commencing 1 August 2031, and may be subject to later adjustments effected by the further application of clause 4.12 of the Contract.

3. <u>The Extension Review</u>

3.1 In the event of notification by the Authority to the Supplier of their intention to extend the Contract in accordance with clause 2.2 and 15.2, which shall be referred to as ‘the First Extension Period’, the Authority shall:

3.1.1 before the end of the final Exclusive Cohort, provide the Supplier with the projection of learners for the Academic Years which fall within the First Extension Period following the end of the fifth Exclusive Cohort which shall be referred to as the Final Updated Projection;

3.1.2 where the Final Updated Projection is calculated to be at least 15% less than the Updated Projection for the fifth Exclusive Cohort, calculate the Entry Fee applicable to the First Extension which shall be referred to as the Extension Entry Fee, in such a sum which ensures that the Supplier retains the opportunity to achieve its % profit margin, as set out in Schedule 6, during the First Extension Period;

3.1.3 the Authority shall notify the Supplier in writing, on or before the 31st December 2032 of the Extension Entry Fee;

3.1.4 by no later than the end of February in the Academic Year prior to the Academic Year in which the Extension Entry Fee may be applied the Supplier shall notify the Authority in writing of its intention to substitute the Entry Fee with such other Entry Fee not exceeding the Extension Entry Fee, as the case may be;

3.1.5 the Extension Entry Fee shall also incorporate any adjustments to the Entry Fee effected by the application of clause 4.12;

3.1.6 any Extension Entry Fee shall apply for the Cohorts for the Academic Years which fall within the First Extension Period.

3.2 In the event that the Authority seeks to extend the Contract beyond the First Extension Period, in accordance with the provisions of clause 2.2 and 15.2 of the Contract, the Extension Entry Fee shall not be amended further save for any adjustments effected by the application of clause 4.12.

Circumstances in which a Reduced Extension Entry Fee will be required

3.3 Where the Final Updated Projection is calculated to be at least 15% more than the Updated Projection for the fifth Exclusive Cohort, the Authority shall determine a reduced Entry Fee which shall be referred to as the 'Reduced Extension Entry Fee' which will be in such amount as to enable the Supplier to retain the opportunity to achieve, but not exceed, its % profit margin, as set out in Schedule 6.

3.3.1 The Authority shall notify the Supplier in writing, on or before the 31st December 2032 of the Reduced Extension Entry Fee;

3.3.2 For the avoidance of doubt, the Reduced Extension Entry Fee will also incorporate any adjustments proposed by the Supplier under clause 4.12 of the Contract.

3.3.3 The Reduced Extension Entry Fee shall apply for the Cohorts for the Academic Years which fall in with the First Extension Period, and may be subject to later adjustments effected by the further application of clause 4.12 of the Contract.

4. General

4.1 The Authority does not provide any assurance that the Updated Projection will be achieved, and the Supplier bears all risks arising from any variance between the Updated Projection, the Final Updated Projection and the actual learner volumes that emerge through the life of the contract.

Schedule 7

Staff (including Key Personnel)

1 Key Personnel

1.1 The Supplier shall ensure that the Key Personnel fulfil the Key Roles during the Term. The Annex to this Schedule lists the Key Roles, remit and names of the persons who the Supplier shall appoint to fill those Key Roles at the Effective Date.

1.2 The Authority can identify any further roles as being Key Roles and, following agreement on this by the Supplier (such agreement not to be unreasonably withheld or delayed) any relevant person selected to fill those Key Roles (and details of the role itself) shall be included on the list of Key Personnel in the Annex to this Schedule.

1.3 The Supplier shall not remove or replace any Key Personnel (including when carrying out its obligations under (*Exit Management*)) unless:

1.3.1 requested to do so by the Authority;

1.3.2 the person concerned resigns, retires or dies or is on maternity or long-term sick leave;

1.3.3 the person's employment or contractual arrangement with the Supplier or a Subcontractor is terminated for material breach of contract by the employee; or

1.3.4 the Supplier obtains Approval (such Approval not to be unreasonably withheld or delayed).

1.4 The Supplier shall:

1.4.1 notify the Authority promptly of the absence of any Key Personnel (other than for short-term sickness or holidays of 2 weeks or less, in which case the Supplier shall ensure appropriate temporary cover for that Key Role);

1.4.2 ensure that any Key Role is not vacant for any longer than 10 Working Days;

1.4.3 give as much notice as is reasonably practicable of its intention to remove or replace any member of Key Personnel and, except in the cases of death, unexpected ill health or a material breach of the Key Personnel's employment contract, this will mean at least 60 Working Days' notice;

1.4.4 ensure that all arrangements for planned changes in Key Personnel provide adequate periods during which incoming and outgoing personnel work together to transfer responsibilities and ensure that such change does not have an adverse impact on the performance of the Services and/or supply of any Products; and

1.4.5 ensure that any replacement for a Key Role:

(i) has a level of qualifications and experience appropriate to the relevant Key Role; and

(ii) is fully competent to carry out the tasks assigned to the Key Personnel whom he or she has replaced.

2 Staff vetting

2.1 For the purposes of this paragraph 2, "**Convictions**" means, other than in relation to minor road traffic offences, any previous or pending prosecutions, convictions, cautions and binding-over orders (including any spent convictions as contemplated by section 1(1) of the Rehabilitation of Offenders Act 1974 or any replacement or amendment to that Act).

2.2 The Supplier shall ensure that all potential Supplier Staff or persons performing any of the Services during the Term who may reasonably be expected in the course of performing any of the Services under this Contract to have access to or come into contact with Students or vulnerable persons (and/or access to data or information relating to such Students or vulnerable persons) are, to the extent permitted by Law:

2.2.1 questioned concerning their Convictions; and

2.2.2. required to obtain appropriate disclosures from the Disclosure and Barring Service (or other appropriate body) where required by Law, before the Supplier engages the potential staff or persons in the provision of the Services.

2.3 The Supplier shall take all necessary steps to ensure that such potential staff or persons referred to in paragraph 2.2 obtain standard and enhanced disclosures from the Disclosure and Barring Service (or other appropriate body) and shall ensure all such disclosures are kept up to date. The obtaining of such disclosures shall be at the Supplier's cost and expense.

2.4 The Supplier shall ensure that no person is employed or otherwise engaged in the provision of the Services without the Authority's prior written consent if:

2.4.1 the person has disclosed and Convictions upon being questioned about their Convictions in accordance with paragraph 2.2.1;

2.4.2 the person is found to have any Convictions following receipt of standard and/or enhanced disclosures from the Disclosure and Barring Service (or other appropriate body) in accordance with paragraph 2.2.2; or

2.4.3 the person fails to obtain standard and/or enhanced disclosures from the Disclosure and Barring Service (or other appropriate body) upon request by the Supplier under paragraph 2.2.2.

2.5 In addition to the requirements of paragraphs 2.1 to 2.4, where the Services are or include regulated activities as defined by the Safeguarding Vulnerable Groups Act 2006 the Supplier shall:

2.5.1 comply with all requirements placed on it by the Safeguarding Vulnerable Groups Act 2006;

2.5.2 ensure that it has no reason to believe that any member of Supplier Staff is barred in accordance with the Safeguarding Vulnerable Groups Act 2006; and

2.5.3 ensure that no person is employed or otherwise engaged in the provision of the Services if that person is barred from carrying out, or whose previous conduct or records indicate that they would not be suitable to carry out, any regulated activities as defined by the Safeguarding Vulnerable Groups Act 2006 or may present a risk to Students or any other person.

2.6 The Supplier shall ensure that the Authority is kept advised at all times of any member of the Supplier Staff who, subsequent to their commencement of employment as a member of the Supplier Staff receives a Conviction or whose previous Convictions become known to the Supplier or whose conduct or records indicate that they are not suitable to carry out any regulated activities as defined by the Safeguarding Vulnerable Groups Act 2006 or may present a risk to Students or any other person. The Supplier shall only be entitled to continue to engage or employ such individual with the Authority's written consent and with such safeguards being put in place as the Authority may reasonably request. Should the Authority withhold consent the Supplier shall immediately remove such individual from the Supplier Staff.

2.7 The Supplier shall immediately provide to the Authority any information that the Authority reasonably requests to enable the Authority to satisfy itself that the obligations set out in paragraphs 2.1 to 2.6 of this Schedule have been met.

2.8 For Supplier Staff appointed following the Effective Date who shall or may have access to DfE Data, in addition to meeting its obligations under this paragraph 2, the Supplier shall carry out pre-employment screening meeting the HMG Baseline Personnel Security Standard (BPSS) or equivalent in accordance with Schedule 9 (*Data Handling and Security Management*).

Annex to

List of Key Personnel

The content for this Annex is as below.

GEN 2 WAVE 3 MIR List of Key Personnel

Schedule 7 Annex 1

List of Key Personnel

Schedule 8

Supply Chain (including approved Subcontractors)

1 Appointment of Key Subcontractors

1.1 Where the Supplier wishes to enter into a Key Sub-Contract or replace a Key Subcontractor, it must obtain Approval, such Approval not to be unreasonably withheld or delayed. For these purposes, the Authority may withhold its Approval to the appointment of a Key Subcontractor if it reasonably considers that:

1.1.1 the appointment of a proposed Key Subcontractor may prejudice the provision of the Services and/or the supply of the Products or may be contrary to the interests of the Authority and/or the TQ;

1.1.2 the proposed Key Subcontractor is unreliable and/or has not provided reasonable services to its other customers or clients;

1.1.3 the proposed Key Subcontractor employs unfit persons; or

1.1.4 the proposed Key Subcontractor should be excluded in accordance with clause 15.9 (*Ending or extending this Contract*).

1.2 The Authority confirms its Approval of the appointment of the Key Subcontractors listed in Annex 1.

1.3 Except where the Authority has given its Approval otherwise, the Supplier shall ensure that each Key Sub-Contract shall include:

1.3.1 provisions which will enable the Supplier to discharge its obligations under this Contract;

1.3.2 a right for the Authority to enforce any provisions under the Key Sub-Contract which are capable of conferring a benefit upon the Authority;

1.3.3 a provision enabling the Authority to enforce the Key Sub-contract as if it were the Supplier;

1.3.4 a provision enabling the Supplier to assign, novate or otherwise transfer any of its rights and/or obligations under the Key Sub-Contract to the Authority or any Replacement Supplier without restriction (including any need to obtain any consent or approval) or payment by the Authority; and

1.3.5 obligations no less onerous on the Key Subcontractor than those imposed on the Supplier under this Contract:

(i) under clauses 18.1 to 18.9.4 (*Data protection and information*);

(ii) under clause 20 (*When information can be shared*);

(iii) in respect of any obligation not to bring the Authority, the Department or Skills England and/or the T Levels Programme into disrepute and/or otherwise diminish the trust that the public places in the Authority, the Department or Skills England, as set out in clause 3 (*How the Services must be supplied*); and

(iv) in respect of the keeping of records and provision of information (including (as applicable) Management Information) in relation to that part of the Services being provided and/or those Products being supplied under the Key Sub-Contract.

1.4 The Supplier shall, as soon as reasonably practicable following a request by the Authority, provide a copy of any proposed Key Sub-Contract (and/or any Key Sub-Contract which it has entered into) to demonstrate compliance by the Supplier with its obligations under this paragraph 1.

2 <u>Subcontractor information</u>

2.1 If the Authority asks the Supplier for details about Subcontractors, the Supplier must provide details of Subcontractors at all levels of the supply chain including:

2.1.1 their name;

2.1.2 the scope of their appointment; and

2.1.3 the duration of their appointment.

Annex 1 to Schedule 8

Key Subcontractors

Not Used

Schedule 9

Data Handling and Security Management

1 The Supplier shall maintain Cyber Essentials certification and shall operate an Information Security Management System in relation to the Services that is compliant with ISO 27001 (the International Standard for Information Security Management Systems) or an equivalent standard.

2 The Supplier shall have in place and maintain physical security, in line with the requirements outlined in ISO 27002 (the International Standard describing the Code of Practice for Information Security Controls), including entry control mechanisms (e.g. door access) to premises and sensitive areas.

3 The Supplier shall have in place and maintain an access control policy and process for the logical access (e.g. identification and authentication) to IT systems to ensure only authorised personnel have access to DfE Data.

4 The Supplier shall have in place and shall maintain procedural, personnel, physical and technical safeguards to protect DfE Data, including: physical security controls; Good Industry Practice policies and processes; anti-virus and firewalls; security updates and up-to-date patching regimes for anti-virus solutions, operating systems, network devices and application software; user access controls; and the creation and retention of audit logs of system use.

5 The Supplier shall carry out and shall maintain records of appropriate technical risk assessments in respect of all aspects of the Supplier's handling of DfE Data. The Supplier shall provide such records to the Authority on request and shall ensure that such records are capable of demonstrating to the Authority's reasonable satisfaction that appropriate procedures are in place to address any significant risks identified.

6 The Supplier shall ensure that DfE Data is processed and stored in a manner which enables such DfE Data to be identified and securely deleted when required. The Supplier shall ensure that DfE Data which is not in electronic form is kept physically separate from the data of the Supplier and any of the Supplier's other customers.

7 Any DfE Data transferred by the Supplier using electronic transfer methods across public space or cyberspace, including mail and courier systems, or third party provider networks must be encrypted to an encryption standard meeting Transport Layer Security (TLS) 1.2 or later.

8 Storage of DfE Data on any portable devices or media shall be limited to the absolute minimum required to deliver the stated requirement and shall be subject to paragraphs 9 and 10 below.

9 Any portable removable media (including pen drives, flash drives, memory sticks, CDs, DVDs, or other devices) which handle, store or process DfE Data to deliver or support the Services, shall be under the control and configuration management of the Supplier, shall be necessary to deliver the Services and shall be encrypted to the Advanced Encryption Standard (AES) 256 or equivalent.

10 All portable IT devices (including laptops, tablets, smartphones or other devices, such as smart watches) which handle, store or process DfE Data to deliver and support the Services, shall be under the control and configuration management of the Supplier, shall be necessary to deliver the Services and shall be full-disk encrypted to the Advanced Encryption Standard (AES) 256 or equivalent.

11 Whilst in the Supplier's care, all removable media and hardcopy paper documents containing DfE Data must be handled securely and secured under lock and key when not in use and shall be securely destroyed when no longer required, using either a cross-cut shredder, a professional secure disposal organisation or an equivalent secure disposal method.

12 When necessary to hand-carry removable media and/or hardcopy paper documents containing DfE Data, the media or documents being carried shall be kept under cover and transported in such a way as to ensure that no unauthorised person has either visual or physical access to the material being carried. This paragraph shall apply equally regardless of whether the material is being carried inside or outside of the Supplier's premises.

13 The Supplier shall ensure throughout the Term that it is in a position (and is able to demonstrate to the Authority's reasonable satisfaction that it is in a position) to provide a complete copy of all DfE Data at the Authority's request at any time and on the termination or expiry of the Contract.

14 At the end of the Contract or in the event of equipment failure or obsolescence, all DfE Data, in either hardcopy or electronic format, that is physically held or logically stored on the Supplier's IT infrastructure must be securely sanitised or destroyed and accounted for in a manner that ensures that the relevant data is not retrievable using normally available methods and/or tools and which allows the Supplier to demonstrate

its compliance with this paragraph 14 at the Authority's request. Where sanitisation or destruction is not possible for legal, regulatory or technical reasons, then the Supplier shall protect the Authority's information and data until such time that it can be securely cleansed or destroyed.

15 Access by Supplier Staff to DfE Data shall be confined to those individuals who have a "need-to-know" in order to carry out their role and have undergone pre-employment screening appropriate to the nature and sensitivity of the DfE Data and, for Supplier Staff appointed following the Effective Date, have undergone pre-employment screening which is at least equivalent to the HMG Baseline Personnel Security Standard (BPSS).

16 All Supplier Staff who handle DfE Data must have annual awareness training in protecting information.

17 The Supplier shall have in place robust business continuity arrangements and processes including IT disaster recovery plans and procedures to ensure that the delivery of the Services is not adversely affected in the event of an incident (as set out in the Supplier's Business Continuity Plan). An incident shall be defined as any situation that might, or could lead to, a disruption, loss, emergency or crisis to the Services. Upon request from the Authority, the Supplier will provide evidence of the effectiveness of their business continuity arrangements and processes including IT disaster recovery plans and procedures. This should include evidence that the Supplier has tested or exercised these plans within the last 12 months and produced a written report of the outcome, including required actions.

18 Any suspected or actual breach of the confidentiality, integrity or availability of DfE Data being handled in the course of providing the Services, or any non-compliance with security standards pertaining to the Services, shall be investigated immediately and escalated to the Authority. The Supplier shall maintain audit records and event logs in respect of any such security events in accordance with documented retention policies approved by the Authority.

19 The Supplier shall ensure that any IT systems and hosting environments that are used to handle, store or process DfE Data shall be subject to independent penetration testing, to take place within the three month period immediately prior to the start of each Academic Year, to test the security of such systems and hosting environments, by a penetration testing provider that is CHECK, CREST or TIGER scheme approved.

The Supplier shall include a summary of the findings of such penetration testing and the details of any necessary remedial work carried out in the annual penetration testing report required under Schedule 2 (*Service Requirements*). In the event of security issues being identified which are ranked as "high" importance or above, the Supplier shall notify the Authority as soon as reasonably possible (and in any event within 2 Working Days), shall promptly remedy such issues, and shall promptly carry out a follow-up remediation test at the Authority's request.

20 The Supplier shall ensure that any consumer-off-the-shelf software used in relation to the DfE Data or otherwise to deliver the Services is kept up-to-date and subject to mainstream support.

21 The Supplier shall procure and implement security patches to address any vulnerabilities in the IT systems used to handle the DfE Data or to deliver the Services, within a period of time appropriate to the risk the vulnerability presents.

22 The Supplier shall not without the prior written agreement of the Authority store any DfE Data outside of the UK or perform any form of IT management, support or development function from outside the UK. The Supplier shall provide the Authority with full details of any proposal to do so and shall not go ahead with any such proposal without the prior written agreement of the Authority.

23 The Supplier shall undergo appropriate security assurance activities as may reasonably be determined by the Authority from time to time and shall support the provision of appropriate evidence of assurance and the production of the necessary security documentation. This will include obtaining any necessary professional security resources required to support the Supplier's security assurance activities.

24 The Supplier shall have in place and maintain a secure system for data exchange sufficient to enable the Supplier to make all required Management Information and Ofqual information returns in relation to the TQ and the Services.

25 Unless otherwise agreed in writing by the Authority, the Supplier shall ensure that any of their Subcontractors, third party suppliers or partners (including any Assessor who is self-employed or who provides services to the Supplier through that Assessor's own personal service company) who could potentially access any DfE Data meet all of the requirements in this Schedule as they apply to the Supplier and shall contractually enforce such requirements onto any such Subcontractors, third party suppliers or

partners (including any Assessor who is self-employed or who provides services to the Supplier through that Assessor’s own personal service company).

Schedule 10

Business Continuity

The content for this Schedule is as below.

GEN 2 WAVE 3 MIR Business Continuity

Schedule 10

Business Continuity

Schedule 11

Change Management

Variation Form

Variation Form / change control note (CCN) No:	**Contract:**	**Effective Date of Variation:**
Initiated by: Change requested by [Supplier **OR** Authority]		
Date of request:		
Period of validity: This Variation Form is valid for acceptance until [DATE].		
Reason for change:		
Description and impact of the change (including to delivery and performance):		
Time limit for Impact Assessment:		
Required amendments to wording of Contract or Schedules:		
Adjustment to Charges resulting from change:		
Supporting or additional information:		

SIGNED ON BEHALF OF THE AUTHORITY	**SIGNED ON BEHALF OF THE SUPPLIER**
Signature:	Signature:
Name:	Name:
Position:	Position:
Date:	Date:

Schedule 12

Exit Management

PART A: GENERAL

1 **Exit Plan**

1.1 The Supplier shall, within two Months after the Effective Date, deliver to the Authority an initial Exit Plan (adopting and updating the form of plan at Annex 1 to this Schedule 12) that:

1.1.1 sets out the Supplier's proposed methodology for achieving an orderly transfer of the Services to the Authority and/or its Replacement Supplier on the expiry or termination of this Contract;

1.1.2 complies with the requirements set out in paragraph 1.3 below; and

1.1.3 is otherwise reasonably satisfactory to the Authority.

1.2 The Authority shall consider the initial Exit Plan and shall notify the Supplier of any amendments it believes are necessary. The Parties shall use reasonable endeavours to agree the contents of the Exit Plan. If the Parties are unable to agree the contents of the Exit Plan within 30 Working Days of the Authority requesting any amendments, then such Dispute shall be resolved in accordance with the Dispute Resolution Procedure.

1.3 The Exit Plan shall set out, as a minimum:

1.3.1 how the Exit Information will be obtained;

1.3.2 separate mechanisms for dealing with Ordinary Exit, Early Exit and Emergency Exit, with the provisions relating to Early Exit and Emergency Exit prepared on the assumption that the Supplier may be unable to provide the full level of assistance that is required by the provisions relating to Ordinary Exit, and to include in the case of Early Exit and Emergency Exit, provision for the supply by the Supplier of all such reasonable assistance as the Authority shall require to enable the Authority or its sub-contractors to provide the Services;

1.3.3 the management structure to be employed during the transfer of the Services in the event of each of an Ordinary Exit, an Early Exit and an Emergency Exit;

1.3.4 a detailed description of the transfer processes, including a timetable, applicable in the case of each of an Ordinary Exit, an Early Exit and an Emergency Exit;

1.3.5 steps the Supplier will take to mitigate the potential for and/or costs of any redundancies (if applicable) of any individual employed by either the Supplier or any Subcontractor in the provision of the Services in the event of each of an Ordinary Exit, an Early Exit and an Emergency Exit; and

1.3.6 without prejudice to the Supplier's obligations elsewhere in this Schedule, the scope of any further termination-related assistance that may reasonably be required by the Authority to achieve an orderly transfer of the Services to the Authority and/or its Replacement Supplier in the case of each of an Ordinary Exit, an Early Exit, and an Emergency Exit.

2 Updates to the Exit Plan

2.1 The Supplier shall review and (if appropriate) update the Exit Plan:

2.1.1 following DfE Approval;

2.1.2 at least once every Academic Year;

2.1.3 whenever there is a material change to the Services (including any TQ Change); and

2.1.4 within 10 Working Days of the service of a Termination Notice, and consider what changes (if any) are necessary to reflect the current state of the Services and the TQ at the relevant point in time and to ensure that the Exit Plan meets the requirements of this Schedule and is capable of being implemented promptly.

2.2 Following each review required under paragraph 2.1, the Supplier shall submit for the Authority's approval a revised draft of the Exit Plan showing any proposed amendments necessary to ensure the Exit Plan continues to meet the requirements of this Schedule. The Authority shall consider each such revised draft and shall notify the Supplier of any further amendments it believes are necessary. The Supplier shall incorporate all reasonable amendments requested by the Authority in a further revised draft of the Exit Plan. If the Parties are unable to agree the contents of a revised Exit Plan within 30 Working Days of the Authority requesting any amendments, then such Dispute shall be resolved in accordance with the Dispute Resolution Procedure.

2.3 When the revised Exit Plan is agreed, it shall be signed by both Parties, following which it shall supersede any previous versions of the Exit Plan.

3 Provision of Exit Information

3.1 The Supplier shall provide to the Authority the Exit Information (as defined in paragraph 3.2 below) in an appropriate documentary form:

3.1.1 within one Month of the date 12 Months prior to the Expiry Date (as extended by any Extension Period);

3.1.2 as soon as reasonably practicable after (and in any event within one Month of) the date of service of a Termination Notice by either Party; and

3.1.3 at the Authority's request on reasonable notice at any point during the Term provided that the Authority shall not make such a request more than twice in any 6 month period.

3.2 Subject to paragraph 3.3, the information to be provided under paragraph 3.1 shall include all such information as is reasonably necessary and sufficient to enable the Authority and/or any Replacement Supplier to take over and provide the Services and the TQ following the expiry or termination of this Contract (the "**Exit Information**"), and in particular shall include:

3.2.1 details of all Supplier third party contracts or licences used for the provision of the Services (including any Transferable Contracts) including, where applicable, whether such contracts or licences are used by the Supplier to provide services to other customers of the Supplier, save to the extent these details are subject to an obligation of confidence to a third party that is not part of the Supplier's corporate group;

3.2.2 details of all the Intellectual Property Rights used in the provision of the Services or developed as part of the Services;

3.2.3 details of any DfE Data that is in the possession or control of the Supplier or any Subcontractors or that is otherwise used in the provision of the Services;

3.2.4 details of any Key Materials and Ancillary Materials;

3.2.5 details of any ongoing projects or other work carried out under this Contract; and

3.2.6 in respect of all individuals engaged in providing the Services, such information as the Authority may reasonably request (subject, at all times, to any relevant Data Protection Legislation), including in an anonymised format full and accurate details of:

(i) the total number of such individuals;

(ii) details of whether they are employed, self-employed contractors or consultants, agency workers or otherwise;

(iii) their dates of commencement of employment or engagement;

(iv) their remuneration and other benefits;

(v) their other terms and conditions of employment, as applicable (including their relevant contractual notice periods and any other terms relating to termination of employment, redundancy procedures and redundancy payments);

(vi) their job titles and job descriptions;

(vii) details of any such individuals on long term sickness absence, parental leave, maternity leave, paternity leave or other authorised long-term absence;

(viii) any outstanding or potential contractual, statutory or other liabilities in respect of such individuals (including in respect of personal injury claims);

(ix) details of who reports to each individual and to whom each individual reports; and

(x) any collective agreements that apply to them; and

3.2.7 any other material or information reasonably requested by the Authority.

3.3 The Supplier shall not be required to provide in the Exit Information any information that has already been provided to the Authority as part of the Management Information, unless that information has become outdated and/or inaccurate since it was last provided as part of the Management Information.

3.4 Once provided in accordance with paragraph 3.1 above, the Supplier shall provide any updates to the Exit Information to the Authority:

3.4.1 on a Monthly basis (following any Month where there are changes to the Exit Information) following the earliest of the dates referred in to paragraphs 3.1.1 and 3.1.2; and

3.4.2 as soon as reasonably practicable following (and in any case within one Month of) the Authority's reasonable request, provided that the Authority shall not make such a request more than twice in any 6 Month period.

3.5 The Exit Information shall be deemed to be Confidential Information. The Authority shall only use the Exit Information for the Exit Purposes as defined in paragraph 4.2 below, and shall ensure that such Exit Information is only disclosed within the Authority to those individuals who need to know the Exit Information for the Exit Purposes. The Authority may disclose the Exit Information to any Replacement Supplier for the Exit Purposes.

4 <u>Provision of assistance on termination or expiry</u>

4.1 In connection with any expiry or termination of this Contract for whatever reason, the Parties shall perform their respective obligations as stated in the Exit Plan, and without prejudice to the generality of this obligation:

4.1.1 the Supplier shall provide to the Authority and/or any Replacement Supplier (as applicable) all reasonable assistance requested by the Authority for the transfer of the Services and the TQ from the Supplier to the Authority and/or the Replacement Supplier (as applicable) with the minimum of disruption and inconvenience to Students and Stakeholders;

4.1.2 the Supplier shall provide the Authority with:

(i) a complete copy of all Key Materials;

(ii) a complete copy of any Ancillary Materials that have not previously been provided or that have been updated since they were last provided; and

(iii) at the Authority's request, further copies of any Ancillary Materials previously provided;

4.1.3 the Supplier shall provide the Authority or, at the Authority's request, any Replacement Supplier, with a copy of all DfE Data that is in the possession or control of the Supplier or any Subcontractors or that is otherwise used in the provision of the Services;

4.1.4 the Supplier shall provide any additional information reasonably required by the Authority to understand and access any data or information provided by the Supplier; and

4.1.5 at the Authority's request, the Supplier shall enter into a period of parallel running of the Services alongside the running of any Replacement Services and shall use its reasonable endeavours to facilitate a phased transfer of the Services to the Authority and/or any Replacement Supplier (but only where that phased transfer does not impact on the Supplier's ability to deliver the Services that it remains responsible for providing under this Contract).

4.2 Without prejudice to the terms of clause 13 (*Intellectual Property Rights*), the Supplier hereby grants to the Authority a worldwide, royalty free licence (with a right to sublicense to any Replacement Supplier) to use any information, data, software or materials referred to in the Exit Information or provided by the Supplier or its Subcontractors in the performance of the Supplier's obligations under this paragraph 4. The Authority and any Replacement Supplier sub-licensees may only use such information, data, software and materials for such purposes and for such period as is reasonably necessary to ensure an orderly transfer of the Services to the Authority or a Replacement Supplier that minimises disruption and inconvenience to Students and Stakeholders ("**Exit Purposes**").

4.3 In the event of an Emergency Exit, the Supplier shall grant or procure the grant to the Authority and any Replacement Supplier the right during any Transition Period and on termination of this Contract to access and use the IT systems used by the Supplier (including software and databases) insofar as such access and use is necessary in order to enable an orderly transfer of the Services to the Authority and/or its Replacement Supplier on the termination of this Contract, and the Supplier shall provide such access, information and credentials as are required for the Authority and/or Replacement Supplier to access such systems for such purposes.

5 Transferable Contracts

5.1 During the period beginning 6 Months prior to the End Date or following the service of a Termination Notice by either party, the Supplier shall not without the Authority's prior written consent terminate, enter into or vary:

5.1.1 any Transferable Contract; or

5.1.2 any other Sub-Contract, except to the extent such change does not or will not affect the provision of the Services or the Charges.

5.2 On expiry or termination of this Contract for any reason, the Supplier shall at the Authority's request assign, novate or procure the novation of the Supplier's interest in the Transferable Contracts to the Authority or a Replacement Supplier.

6 Costs of assistance on termination or expiry

6.1 Save in respect of the provision of the Services (for which the Supplier shall continue to be remunerated in accordance with Schedule 6 (*Pricing Schedule*)):

6.1.1 where the Contract is terminated by the Authority as a result of a Supplier Termination Event under clause 15.3 (*Ending or extending this Contract*) or where the Contract is wrongfully terminated or repudiated by the Supplier, the Parties' costs of compliance with paragraph 4 shall be borne by the Supplier; and

6.1.2 where the Contract is terminated by the Supplier under clause 15.5 (*Ending or extending this Contract*) or where the Contract is wrongfully terminated or repudiated by the Authority, the Parties' costs of compliance with paragraph 4 shall be borne by the Authority.

6.2 References to "**costs**" in paragraph 6.1 shall be deemed to refer only to direct, reasonable and verifiable costs (which, in the case of the Supplier, shall be calculated in accordance with the Rate Card). Both Parties shall use all reasonable endeavours to mitigate such costs and, to the extent reasonably practicable, each Party shall notify and obtain the consent of the other Party before incurring any costs for which the other Party would be liable under paragraph 6.1.

6.3 Subject to paragraph 6.1, each Party shall bear its own costs of compliance with this Schedule.

7 General

7.1 The Supplier warrants to the Authority that all the information provided under paragraphs 3 and 4 shall conform to the requirements of this Contract or, where there are no such requirements, shall be prepared in accordance with Good Industry Practice.

7.2 Except as otherwise stated in the Exit Plan:

7.2.1 the obligations in paragraphs 4 and 5 shall be in addition to, and not in substitution for, the provision of the Services; and

7.2.2 subject to the continued payment of the Charges in accordance with the terms of this Contract, the Supplier shall continue to provide, and the Authority shall continue to receive, the Services during the Term in accordance with the terms and conditions of this Contract.

PART B: EMPLOYMENT

8 Employment exit provisions

8.1 This Contract envisages that subsequent to its commencement, the identity of the provider of the Services (or any part of the Services) may change (whether as a result of termination of this Contract, or part or otherwise) resulting in a transfer of the Services in whole or in part ("**Subsequent Transfer**"). If a Subsequent Transfer is a Relevant Transfer, then the Authority or Replacement Supplier will inherit liabilities in respect of the Relevant Employees with effect from the Relevant Transfer Date.

8.2 The Supplier shall and shall procure that any Subcontractor shall on receiving notice of termination of this Contract or otherwise, on request from the Authority and at such times as required by TUPE, provide in respect of any person engaged or employed by the Supplier or any Subcontractor in the provision of the Services, the Supplier's Provisional Supplier Personnel List and the Staffing Information together with any additional information required by the Authority, including information as to the application of TUPE to each individual listed on the Supplier's Provisional Supplier Personnel List. The Supplier shall notify the Authority of any material changes to this information as and when they occur.

8.3 At least 28 days prior to the Relevant Transfer Date, the Supplier shall and shall procure that any Subcontractor shall prepare and provide to the Authority and/or, at

the direction of the Authority, to the Replacement Supplier, the Supplier's Final Supplier Personnel List, which shall be complete and accurate in all material respects. The Supplier's Final Supplier Personnel List shall identify which of the Supplier's and Subcontractor's personnel named are Relevant Employees.

8.4 The Authority shall be permitted to use and disclose the Supplier's Provisional Supplier Personnel List, the Supplier's Final Supplier Personnel List and the Staffing Information for informing any tenderer or other prospective Replacement Supplier for any services that are substantially the same type of services as (or any part of) the Services.

8.5 The Supplier warrants to the Authority and the Replacement Supplier that the Supplier's Provisional Supplier Personnel List, the Supplier's Final Supplier Personnel List and the Staffing Information ("**TUPE Information**") will be true and accurate in all material respects and that no persons are employed or engaged in the provision of the Services other than those included on the Supplier's Final Supplier Personnel List.

8.6 The Supplier shall and shall procure that any Subcontractor shall ensure at all times that it has the right to provide the TUPE Information under Data Protection Legislation.

8.7 Any change to the TUPE Information which would increase the total employment costs of the staff in the 12 months prior to the Expiry Date and/or the period following the date of service of a Termination Notice by either Party, shall not (so far as reasonably practicable) take place without the Authority's prior written consent, unless such changes are required by law. The Supplier shall and shall procure that any Subcontractor shall supply to the Authority full particulars of such proposed changes and the Authority shall be afforded reasonable time to consider them.

8.8 In the 12 months prior to the Expiry Date and the period following the date of service of a Termination Notice by either Party, the Supplier shall not and shall procure that any Subcontractor shall not materially increase or decrease the total number of staff listed on the Supplier's Provisional Supplier Personnel List, their remuneration, or make any other change in the terms and conditions of those employees without the Authority's prior written consent.

8.9 The Supplier shall be responsible for all remuneration, benefits, entitlements and outgoings in respect of the Supplier's Personnel, including without limitation, all wages, holiday pay, bonuses, commissions, payments of PAYE, National Insurance, pension contributions and otherwise, up to the Relevant Transfer Date.

8.10 The Supplier shall indemnify and keep indemnified in full the Authority and at the Authority's request each and every Replacement Supplier against all Employee Liabilities relating to:

8.10.1 any person who is or has been employed or engaged by the Supplier or any Subcontractor in connection with the provision of any of the Services; or

8.10.2 any trade union or staff association or employee representative,

arising from or connected with any failure by the Supplier and/or any Subcontractor to comply with any legal obligation, and whether any such claim arises or has its origin before or after the Relevant Transfer Date.

8.11 The Authority will and/or shall ensure that any Replacement Supplier will indemnify and keep indemnified in full the Supplier against any liability to the extent only arising from any failure by the Authority and/or any Replacement Supplier to comply with their obligations under TUPE.

8.12 The parties shall co-operate to ensure that any requirement to inform and consult with the employees and or employee representatives in relation to any Relevant Transfer as a consequence of a Subsequent Transfer will be fulfilled.

8.13 The parties agree that the Contracts (Rights of Third Parties) Act 1999 shall apply in respect of paragraph 8.2 to paragraph 8.10 to the extent necessary to ensure that any Replacement Supplier shall have the right to enforce the obligations owed to, and indemnities given to, the Replacement Supplier by the Supplier or the Authority in its own right under the Contracts (Rights of Third Parties) Act 1999.

8.14 Despite paragraph 8.13, it is expressly agreed that the parties may by agreement rescind or vary any terms of this Contract without the consent of any other person who has the right to enforce its terms or the term in question despite that such rescission or variation may extinguish or alter that person’s entitlement under that right.

Schedule 12: Annex 1 – Exit Plan

The content for this Annex is as below.

GEN 2 WAVE 3 MIR Exit Plan

Schedule 12 Annex 1

Exit Plan

Schedule 13

Form of Guarantee

Not Used

Schedule 14

Form of Assignment and Licence

DATED

DEPARTMENT FOR EDUCATION

and

[*Supplier*]

INTELLECTUAL PROPERTY ASSIGNMENT AND LICENCE IN RELATION TO THE [xxx] T LEVEL TECHNICAL QUALIFICATION

[***DN: The highlighted details above are to be completed at the Contract award stage***]

THIS ASSIGNMENT AND LICENCE is made on

BETWEEN:

(1) **DEPARTMENT FOR EDUCATION** of 20 Great Smith Street, London SW1P 3BT ("**Authority**"); and

(2) **[*DN: Insert Supplier name and details at Contract award stage*]** ("**Supplier**"), each a "**Party**" and together the "**Parties**".

BACKGROUND TO THIS ASSIGNMENT AND LICENCE

(A) The Authority and the Supplier have entered into a contract on the date of this Assignment and Licence for the design, development and delivery of the technical education qualification element ("**TQ**") for the [***DN: Relevant pathway to be inserted at Contract award stage***] T Level ("the **TQ Agreement**").

(B) The Supplier has agreed to assign certain intellectual property rights to the Authority, and to licence certain intellectual property rights to the Authority in connection with the TQ. The Authority has agreed to grant a licence back to the Supplier in relation to certain assigned intellectual property rights.

(C) This Assignment and Licence, together with the TQ Agreement sets out the agreed terms of such assignment and licences.

1 Assignment and Licence start, formation and interpretation

1.1 This Assignment and Licence is legally binding from the Effective Date until it ends in accordance with its terms.

1.2 In this Assignment and Licence, unless the context otherwise requires, capitalised expressions shall have the meanings set out in this clause 1 or, where no definition is given in this clause 1, Schedule 1 to the TQ Agreement.

1.3 If a capitalised expression does not have an interpretation in this clause 1 or Schedule 1 to the TQ Agreement, it shall, in the first instance, be interpreted in accordance with the common interpretation within the relevant market sector where appropriate. Otherwise, it shall be interpreted in accordance with the dictionary meaning.

1.4 In this Assignment and Licence, unless the context otherwise requires:

1.4.1 the singular includes the plural and vice versa;

1.4.2 reference to a gender includes the other gender and the neuter;

1.4.3 references to a person include an individual, company, body corporate, Corporation, unincorporated association, firm, partnership or other legal entity or Crown Body;

1.4.4 references to a legal entity (other than the Supplier) shall include unless otherwise expressly stated any statutory successor to such entity and/or the relevant functions of such entity, and references to the Department shall include, where relevant, Skills England;

1.4.5 a reference to any Law includes a reference to that Law as amended, extended, consolidated or re-enacted from time to time;

1.4.6 the words "**including**", "**other**", "**in particular**", "**for example**" and similar words shall not limit the generality of the preceding words and shall be construed as if they were immediately followed by the words "**without limitation**";

1.4.7 references to **"writing"** include typing, printing, lithography, photography, display on a screen, electronic and facsimile transmission and other modes of representing or reproducing words in a visible form, and expressions referring to writing shall be construed accordingly;

1.4.8 references to **"clauses"** and **"Schedules"** are, unless otherwise provided, references to the clauses and schedules of the Assignment and Licence and references in any Schedule to parts, paragraphs, annexes and tables are, unless otherwise provided, references to the parts, paragraphs, annexes and tables of the Schedule in which these references appear;

1.4.9 references to **"paragraphs"** are, unless otherwise provided, references to the paragraph of the appropriate Schedule unless otherwise provided; and

1.4.10 the headings in the Assignment and Licence are for ease of reference only and shall not affect the interpretation or construction of this Agreement and Licence.

1.5 In this Assignment and Licence, unless the context otherwise requires, the following words shall have the following meanings:

"**Ancillary Materials**" means all information and materials (other than Key Materials) to which the Authority and/or a Future Supplier would require access for the Portability Purposes, and any other materials which would be required on or to facilitate succession to a Future Supplier in a seamless manner in relation to the TQ offered or Operated by the Supplier.

Ancillary Materials shall include, without limitation:

(a) Student results including grades;

(b) statistical analysis for grading (excludes the systems supporting the analysis);

(c) lists of Providers;

(d) marked Student evidence (with moderation outcomes);

(e) documentation which provides an overview or analysis of Student performance (including chief examiner and chief moderator reports), which include but are not limited to, examples of student responses to assessment questions and/or tasks as well as narrative explaining why students did well/ less well on individual items/ components/ subcomponents);

(f) data on Student credits;

(g) data on Student appeals;

(h) data on special considerations for Students;

(i) the Assessment Strategy;

(j) Student registrations;

(k) draft materials in preparation for forthcoming assessments;

(l) the Key Dates Schedule (in respect of forthcoming assessments);

(m) lists, with contact details, of people contracted by the Supplier to perform or oversee activities which are necessary for the conduct and quality assurance of assessments for the TQ;

(n) materials from completed assessments, such as completed Students' examination answer booklets; and

(o) TQ Live Assessment Materials

"**Approval**" has the same meaning as in the TQ Agreement;

"**Assigned Rights**" means the Intellectual Property Rights in the Key Materials;

"**Authority Authorised Representative**" has the same meaning as in the TQ Agreement;

"**Background IPR**" means any IPR owned by a Party prior to the Effective Date or created or developed by a Party otherwise than in the provision of the Services or under or in connection with the TQ Agreement, but does not include IPR in Key Materials;

"**Beneficiary**" means a Party having (or claiming to have) the benefit of an indemnity under this Assignment and Licence;

"**Claim**" means any claim for which it appears that a Beneficiary is, or may become, entitled to indemnification under this Assignment and Licence;

"**Continuing Activities**" means activities of the Supplier under the TQ Agreement which continue following the end of the second Academic Year for the final Exclusive Cohort (each as defined in the TQ Agreement) in relation to the TQ as offered by the Supplier, such as retakes, appeals, and any ongoing records management contracted to the Supplier;

"**Default**" means any breach of the obligations of the Supplier (including abandonment of the Assignment and Licence in breach of its terms) or any other default (including material default), act, omission, negligence or statement of the Supplier, of its Subcontractors or any Supplier Staff howsoever arising in connection with or in relation to the subject-matter of this Assignment and Licence and in respect of which the Supplier is liable to the Authority;

"**Deliverables**" means all information and data the Supplier creates, identifies for use, or uses as part of or for the Operation of the TQ, including Products and Management Information;

"**Dispute**" means any claim, dispute or difference which arises out of or in connection with this Assignment and Licence or in connection with the negotiation, existence, legal validity, enforceability or termination of this Assignment and Licence, whether the

alleged liability shall arise under English law or under the law of some other country and regardless of whether a particular cause of action may successfully be brought in the English courts;

"**Effective Date**" means the date on which the last Party to sign has signed this Assignment and Licence;

"**Final Approval Milestone**" has the meaning given in the TQ Agreement;

"**Future Supplier**" means any Awarding Organisation appointed, at any point in the future and including any Replacement Supplier, to operate one or more T Level technical education qualifications by or at the direction of the Authority from time to time, and where the Authority is operating a T Level technical education qualification, shall also include the Authority;

"**Indemnifier**" means a Party from whom an indemnity is sought under this Assignment and Licence;

"**Insolvency Event**" means:

(a) in respect of a company:

(i) a proposal is made for a voluntary arrangement within Part I of the Insolvency Act 1986 or of any other composition scheme or arrangement with, or assignment for the benefit of, its creditors; or

(ii) a shareholders' meeting is convened for the purpose of considering a resolution that it be wound up or a resolution for its winding-up is passed (other than as part of, and exclusively for the purpose of, a bona fide reconstruction or amalgamation); or

(iii) a petition is presented for its winding up (which is not dismissed within fourteen (14) Working Days of its service) or an application is made for the appointment of a provisional liquidator or a creditors' meeting is convened pursuant to section 98 of the Insolvency Act 1986; or

(iv) a receiver, administrative receiver or similar officer is appointed over the whole or any part of its business or assets; or

(v) an application order is made either for the appointment of an administrator or for an administration order, an administrator is appointed, or notice of intention to appoint an administrator is given; or

(vi) it is or becomes insolvent within the meaning of section 123 of the Insolvency Act 1986; or

(vii) being a "**small company**" within the meaning of section 382(3) of the Companies Act 2006, a moratorium comes into force pursuant to Schedule A1 of the Insolvency Act 1986; or

(b) where the person is an individual or partnership, any event analogous to those listed in limbs (a) (i) to (vii) (inclusive) occurs in relation to that individual or partnership; or

(c) any event analogous to those listed in limbs (a) (i) to (vii) (inclusive) occurs under the law of any other jurisdiction;

"**Intellectual Property Rights**" or "**IPR**" means:

(a) copyright, rights related to or affording protection similar to copyright, rights in databases, patents and rights in inventions, semi-conductor topography rights, trade marks, rights in internet domain names and website addresses and other rights in trade or business names, goodwill, designs, Know-How, trade secrets and other rights in Confidential Information;

(b) applications for registration, and the right to apply for registration, for any of the rights listed at (a) that are capable of being registered in any country or jurisdiction; and

(c) all other rights having equivalent or similar effect in any country or jurisdiction;

"**IPR Claim**" means any claim of infringement or alleged infringement (including the defence of such infringement or alleged infringement) of any IPR used to provide the Services and/or supply the Products or otherwise provided and/or licensed by the Supplier (or to which the Supplier has provided access) to the Authority in the fulfilment of its obligations under the TQ Agreement or this Assignment and Licence;

"**Key Materials**" means materials the IPR in which the Authority reasonably requires ownership of for the Portability Purposes. Examples of where the Authority may reasonably require ownership include because the Authority or a Future Supplier (or, where relevant, a potential Future Supplier) may need to copy or otherwise reproduce such materials (in whole or in part), to supply or communicate the same, or to be able to control the use (in whole or in part) of such materials by third parties, or to authorise others to do so.

Key Materials shall include:

(a) specifications of content for each TQ including core and all specialist components;

(b) assessment guidelines (for Providers);

(c) quality assurance requirements (for Providers);

(d) specimen assessment materials;

(e) standards exemplification materials;

(f) supplementary specimen assessment materials

(g) employer set project guide exemplar responses

(h) employer set project grade exemplar responses

(i) updates or redevelopments of specifications of content;

(j) updates and redevelopments of any Key Materials; and

(k) any materials equivalent to the above to which a Skilled Future Supplier would reasonably require access for the Portability Purposes.

Key Materials shall not include:

(1) Support Materials, insofar as they are not part of any of the expressly included items listed above;

(2) question banks insofar as they are not part of any of the included items listed above and are not developed for the TQ; and

(3) any systems and platforms used to support the delivery of the TQ, provided that the relevant TQ content or data held in or processed by such systems and/or platforms can be extracted without requiring further processing post-extraction (and the Supplier can demonstrate that they can be so extracted) to enable use of the relevant content and/or data by a Skilled Future Supplier in conjunction with a non-proprietary or generally commercially available system or platform;

"**Know-How**" means all ideas, concepts, schemes, information, knowledge, techniques, methodology, and anything else in the nature of know-how relating to the Services;

"**Law**" means any law, subordinate legislation within the meaning of Section 21(1) of the Interpretation Act 1978, bye-law, enforceable right within the meaning of Section 2 of the European Communities Act 1972, regulation, order, regulatory policy, mandatory guidance or code of practice, judgment of a relevant court of law, or directives or requirements with which the Supplier is bound to comply;

"**Losses**" means all losses, liabilities, damages, costs, expenses (including legal fees), disbursements, costs of investigation, litigation, settlement, judgment, interest and penalties whether arising in contract, tort (including negligence), breach of statutory duty, misrepresentation or otherwise and "**Loss**" shall be interpreted accordingly;

"**New IPR**" means :

(a) IPR in items created by the Supplier (or by a third party on behalf of the Supplier) specifically for the purposes of the TQ Agreement and updates and amendments of these items including (but not limited to) database schema; and/or

(b) IPR in or arising as a result of the performance of the Supplier's obligations under the TQ Agreement and all updates and amendments to the same,

but shall not include any IPR owned by the Supplier prior to the Effective Date;

"**Operate**" in relation to a qualification means to provide the Services or a material part of the Services, or services replacing the Services or a material part of the Services, or of an equivalent character to the Services or a material part of the Services in

relation to any other qualification (whether a T Level technical education qualification or not); and "**Operation**" and other cognate terms shall have a corresponding meaning;

"**Party**" means the Authority or the Supplier and "**Parties**" means both of them where the context permits;

"**Product**" has the meaning given in the TQ Agreement;

"**Provider**" means an organisation that has a grant agreement and/or a contract in place with the Department to provide qualifications to Students;

"**Replacement Services**" means any services which are substantially similar to any of the Services (including the supply of any Products) and which the Authority receives in substitution for any of the Services, whether those services are provided by the Authority internally and/or by any third party;

"**Replacement Supplier**" has the meaning given in the TQ Agreement;

"**Required Insurances**" has the meaning given in the TQ Agreement;

"**Services**" means the services as described in Schedule 2 to the TQ Agreement (*Service Requirements*) including any Additional Services as defined in the TQ Agreement;

"**Termination Notice**" means a written notice of termination given by one Party to the other, notifying the Party receiving the notice of the intention of the Party giving the notice to terminate this Assignment and Licence on a specified date and setting out the grounds for termination;

"**Third Party IPR**" means Intellectual Property Rights owned by a third party which is or will be used by the Supplier for the purpose of providing the Services and/or supplying the Products;

"**TQ Agreement**" has the meaning given in recital A (above);

"**Transparent**" means that students and employers will regard the TQ delivered by a Future Supplier as materially the same as the TQ delivered and operated by the (existing) Supplier;

"**Working Day**" means any day other than a Saturday or Sunday or public holiday in England and Wales.

2 Assignment

2.1 Pursuant to and for the consideration set out in the TQ Agreement, the Supplier assigns to the Authority, absolutely with full title guarantee all its right, title and interest in and to all of the Intellectual Property Rights in the Key Materials (which, for the avoidance of doubt, includes the Guide Standard Exemplification Materials) including the right to bring, make, oppose, defend, appeal proceedings, claims or actions and obtain relief (and to retain any damages recovered) in respect of any infringement, or any other cause of action arising from ownership, of any of the Assigned Rights on or after the date of this Assignment and Licence. Such assignment shall take place on the earlier of:

2.1.1 the creation of any relevant materials known to be Key Materials;

2.1.2 the identification by the Supplier of the use of the relevant materials as part of the TQ; and

2.1.3 delivery of the relevant Key Materials to the Authority, or Operation of the TQ by the Supplier.

2.2 With the exception of Guide Standard Exemplification Materials, all Key Materials are relevant course documents for the purposes of section A2D3(4) of the Apprenticeships, Skills, Children and Learning Act 2009, and on approval of the TQ at the Final Approval Milestone and on any subsequent Approval, to the extent that any copyright or any rights in copyright forming part of the Assigned Rights have not then been assigned to and vested absolutely in the Authority, they shall be transferred to the Authority by operation of statute in accordance with section A2IA of the Apprenticeships, Skills, Children and Learning Act 2009. Intellectual Property Rights in the Guide Standard Exemplification Materials is assigned to the Authority by virtue of 2.1 above.

3 Licences to the Authority

3.1 The Supplier hereby grants to the Authority (and the Authority shall have, in addition to any retained rights under clause 13.8 of the TQ Agreement) a non-exclusive, perpetual, royalty-free, irrevocable, transferable worldwide licence to use, exploit and sub-license the IPR in the Ancillary Materials and the Supplier's Background IPR and, in respect of any IPR in Key Materials, in each case to the extent that the same are not at the relevant time vested absolutely in the Authority, as necessary to enable the Authority (and its sub-licensees) to:

3.1.1 use the Key Materials and Ancillary Materials in its administration, approval and oversight of the TQ and other T Level technical education qualifications and to make the same available to others (such as Ofqual) to do the same; and

3.1.2 to use the Key Materials and the Ancillary Materials, and for any Future Supplier or potential Future Supplier to use the Key Materials and the Ancillary Materials:

(i) for competing or tendering for the delivery and Operation of the TQ and/or any Replacement TQ, during any Transition Period and following expiry or termination of the TQ Agreement; and

(ii) to deliver and Operate the TQ and any Replacement TQ, during any Transition Period and following expiry or termination of the TQ Agreement; and

3.1.3 otherwise to receive and use the Services and the Deliverables and allow any Future Supplier to use the Deliverables; and

3.1.4 to sub-license others to exercise the rights set out in this clause 3.1.

3.2 The Authority agrees that it shall use any Ancillary Materials which fall solely within element (m) of the definition of Ancillary Materials (being "*lists, with contact details, of people contracted by the Supplier to perform or oversee activities which are necessary for the conduct and quality assurance of assessments for the TQ*") only for the purposes of planning for or executing an Emergency Exit.

4 Licence to the Supplier

4.1 The Authority hereby grants to the Supplier, in respect of the Assigned Rights, a worldwide, royalty free, perpetual and irrevocable non-exclusive licence, with the right to sublicense, to use and exploit the IPR in the Key Materials during and after the Term, but not, save as provided in the TQ Agreement, to use the same as part of a T Level, such licence being subject to clauses 13.13 and 13.14 of the TQ Agreement (which for these purposes shall survive any termination or expiry of the TQ Agreement).

5 Warranties and representations

5.1 The Supplier warrants and represents (on the Effective Date and on any relevant assignment or grant of licence taking effect) that:

5.1.1 it is or will be the sole legal and beneficial owner of, and that it owns all the rights and interests in the Assigned Rights no later than the time for assignment specified in clause 2.1 or when they are assigned in accordance with clause 13.2.1 of the TQ Agreement, save for Assigned Rights other than New IPR, in respect of which it has previously notified the Authority and the Authority has agreed in writing that this warranty shall not apply;

5.1.2 where it is not the sole legal and beneficial owner of the Assigned Rights, including the Assigned Rights which are to be used or embodied in any Key Materials, it has established that all owners of such rights consent to their assignment and transfer absolutely to the Authority;

5.1.3 it has all the necessary right and title to grant all the licences granted to the Authority under this Assignment and Licence and the TQ Agreement;

5.1.4 it has not licensed or assigned and of the Assigned Rights other than pursuant to this Assignment and Licence or the TQ Agreement;

5.1.5 the Assigned Rights are free from any security interest, option, mortgage, change or lien;

5.1.6 it is unaware of any infringement or likely infringement of any of the Assigned Rights;

5.1.7 as far as it is aware, all the Assigned Rights are valid and subsisting and there are and have been no claims, challenges, disputes or proceedings, pending or threatened, in relation to the ownership, validity or use of any of the Assigned Rights;

5.1.8 the use of the Key Materials and Ancillary Materials, and exploitation of the Assigned Rights by the Supplier in the provision of the Services and Deliverables or by the Authority in receiving and using the Services and Deliverables or procuring any Replacement Services or by aby Future Supplier in Operating any Replacement Services, will not infringe the rights of any third party; and

5.1.9 the Key Materials are its original work and have not been copied wholly or substantially from any other source.

6 Indemnity

6.1 Subject to clause 19, if there is an IPR Claim, the Supplier indemnifies the Authority against all losses, damages, costs or expenses (including professional fees and fines) incurred as a result.

6.2 If an IPR Claim is made or anticipated, the Supplier must at its own expense and the Authority's sole option, either:

6.2.1 obtain for the Authority the rights in clause 2.1 and 3.1 without infringing any Third Party IPR; or

6.2.2 replace or modify the relevant item with substitutes that do not infringe IPR without adversely affecting the functionality or performance of the Deliverables.

7 Moral rights

7.1 The Supplier shall procure written absolute waivers from all authors of the Key Materials and Ancillary Materials in relation to all their moral rights arising under the Copyright, Designs and Patents Act 1988 in relation to the Key Materials and Ancillary Materials and, as far as is legally possible, any broadly equivalent rights such authors may have in any territory of the world.

8 Ending or extending the Assignment and Licence

8.1 This Assignment and Licence ends if terminated by the Authority for any reason set out in this Assignment and Licence.

8.2 If any of the following events happen, the Authority has the right to immediately Terminate this Assignment and Licence or any of the licences granted under this Assignment and Licence by issuing a Termination Notice to the Supplier (in the latter case specifying the relevant licences):

8.2.1 a Default incapable of remedy;

8.2.2 a Default capable of remedy that us not corrected within 30 days; and

8.2.3 anything occurs which entitles the Authority to terminate the TQ Agreement.

9 Claims against third parties

9.1 The Supplier may take any action it considers appropriate or necessary, subject to the Authority's prior written consent, not to be unreasonably withheld or delayed, if there is a breach, other than in connection with the TQ, by a third party of the Authority's rights in any IPR licensed to the Supplier under clause 4, and the Authority agrees to provide all such assistance as the Supplier may reasonably require (subject to meeting the Authority's reasonably agreed costs and expenses and the Supplier hereby indemnifying the Authority in respect of any loss, damage or liability the Authority incurs by reason of any such action).

10 Further assurance

10.1 At the Authority's expense the Supplier shall, and shall use all reasonable endeavours to procure that any necessary third party shall, promptly execute and deliver such documents and perform such acts as may reasonably be required for the purpose of giving full effect to this Assignment and Licence and the TQ Agreement, including:

10.1.1 registration of the Authority as applicant or (as applicable) proprietor of the Assigned Rights; and

10.1.2 assisting the Authority in obtaining, defending and enforcing the Assigned Rights, and assisting with any other proceedings which may be brought by or against the Authority against or by any third party relating to the Assigned Rights.

10.2 The Supplier appoints the Authority to be its attorney in its name and on its behalf to execute documents, use the Supplier's name and do all things which are necessary or desirable for the Authority to obtain for itself or its nominee the full benefit of this Assignment and Licence.

10.3 This power of attorney is irrevocable and is given by way of security to secure the performance of the Supplier's obligations under this Assignment and Licence and the proprietary interest of the Authority in the Assigned Rights and so long as such obligations of the Supplier remain undischarged, or the Authority has such interest, the power may not be revoked by the Supplier, save with the consent of the Authority.

10.4 Without prejudice to clause 10.2, the Authority may, in any way it thinks fit and in the name and on behalf of the Supplier:

10.4.1 take any action that this Assignment and Licence requires the Supplier to take;

10.4.2 exercise any rights which this Assignment and Licence gives to the Supplier; and

10.4.3 appoint one or more persons to act as substitute attorney(s) for the Supplier and to exercise such of the powers conferred by this power of attorney as the Authority thinks fit and revoke such appointment.

10.5 The Supplier undertakes to ratify and confirm everything that the Authority and any substitute attorney does or arranges or purports to do or arrange in good faith in exercise of any power granted under this clause 10.

11 How much each Party can be held responsible for

11.1 Each Party's total aggregate liability under this Assignment and Licence (whether in tort, contract or otherwise) for each claim or series of connected claims is no more than £1 million.

11.2 No party is liable to the other for:

11.2.1 any indirect Losses; or

11.2.2 loss if profits, turnover, savings, business opportunities or damage to goodwill (in each case whether direct or indirect)

11.3 The limitation of liability set out in clause 11.1 does not apply to either Party in relation to the following:

11.3.1 its liability for death or personal injury caused by its negligence, or that of its employees, against or subcontractors;

11.3.2 bribery or fraud or fraudulent misrepresentation by it or its employees; or

11.3.3 any liability that cannot be excluded or permitted by Law.

11.4 Each Party must use all reasonable endeavours to mitigate any Losses which it suffers under or in connection with this Assignment and Licence, including where any such Losses are covered by an indemnity.

11.5 When calculating the Supplier's liability under clause 11.1, Losses covered by Required Insurances will not be taken into consideration.

12 Invalid parts of this Assignment and Licence

12.1 If any part of this Assignment and Licence is prohibited by Law or judged by a court to be unlawful, void or unenforceable, it must be removed from this Assignment and Licence as much as required and rendered ineffective as far as possible without affecting the rest of the Assignment and Licence, or whether it is valid or enforceable.

13 No other terms apply

13.1 Except as otherwise expressly provided in this Assignment and Licence or in the TQ Agreement, the provisions incorporated into this Assignment and Licence are the entire agreement between the Parties. The Assignment and Licence replaces all previous statements and agreements whether written or oral. No other provisions apply.

13.2 Variation of this Assignment and Licence is only effective if agreed in writing and signed by both Parties.

14 Other people's rights in this Assignment and Licence

14.1 No third parties may use the Contracts (Rights of Third Parties) Act ("**CRTPA**") to enforce any term of this Assignment and Licence unless stated (referring to CRTPA) in this Assignment and Licence. This does not affect third party rights and remedies that exist independently from CRTPA.

15 Relationships created by this Assignment and Licence

15.1 This Assignment and Licence does not create a partnership, joint venture or employment relationship. The Supplier must represent themselves accordingly and ensure others do so.

16 Giving up contract rights

16.1 A partial or full waiver or relaxation of the terms of this Assignment and Licence is only valid if it is stated to be a waiver in writing to the other Party.

17 Transferring responsibilities

17.1 The Supplier must not assign this Assignment and Licence without Approval.

17.2 The Authority can assign, novate or transfer this Assignment and Licence or any part of it to any Crown Body, public or private sector body which performs the functions of the Authority.

17.3 The Supplier must enter into a novation agreement in the form that the Authority specifies in order to use its rights under clause 17.2.

17.4 The Supplier can terminate this Assignment and Licence if it is novated under clause 17.2 to a private sector body that is experiencing an Insolvency Event.

18 How to communicate about this Assignment and Licence

18.1 All notices under this Assignment and Licence must be in writing and are considered effective on the Working Day of delivery as long as delivered before 5:00 pm on a Working Day. Otherwise, the notice is effective on the next Working Day. An email is effective when sent unless an error message is received.

18.2 Notices to the Authority must be sent to the Authority Authorised Representative's email address, (or address, where e-mail is not practicable), set out in Schedule 20 (Authorised Representatives) of the TQ Agreement, and all notices must be copied to the Authority's Head of Commercial Delivery Management (xxx@education.gov.uk).

18.3 This clause does not apply to the service of legal proceedings or any documents in any legal action, arbitration or dispute resolution.

19 Dealing with claims

19.1 If a Beneficiary is notified or otherwise becomes aware of a Claim then it must notify the Indemnifier as soon as reasonably practical and no later than 10 Working Days after such notification or date of first awareness.

19.2 At the Indemnifier's cost the Beneficiary must both:

19.2.1 allow the Indemnifier to conduct all negotiations and proceedings to do with a Claim; and

19.2.2 give the Indemnifier reasonable assistance with the Claim if requested.

19.3 The Beneficiary must not make admissions about the Claim without the prior written consent of the Indemnifier which cannot be unreasonably withheld or delayed.

19.4 The Indemnifier must consider and defend the Claim diligently using competent legal advisors and in a way that does not damage the Beneficiary's reputation.

19.5 The Indemnifier must not settle or compromise any Claim without the Beneficiary's prior written consent which it must not unreasonably withhold or delay.

19.6 Each Beneficiary must take all reasonable steps to minimise and mitigate any losses that it suffers because of the Claim.

19.7 If the Indemnifier pays the Beneficiary money under an indemnity and the Beneficiary later recovers money which is directly related to the Claim, the Beneficiary must immediately repay the Indemnifier the lesser of either:

19.7.1 the sum recovered minus any legitimate amount spent by the Beneficiary when recovering this money; or

19.7.2 the amount the Indemnifier paid the Beneficiary for the Claim.

20 Resolving disputes

20.1 If there is a Dispute, the senior representatives of the Parties who have authority to settle the Dispute will, within 28 days of a written request from the other Party, meet in good faith to resolve the Dispute.

20.2 If the Dispute is not resolved at that meeting, the Parties can attempt to settle it by mediation using the Centre for Effective Dispute Resolution ("**CEDR**") Model Mediation Procedure current at the time of the Dispute. If the Parties cannot agree on a mediator, the mediator will be nominated by CEDR. If either Party does not wish to use, or continue to use mediation, or mediation does not resolve the Dispute, the Dispute must be resolved using clauses 20.3 to 20.5.

20.3 Unless the Authority refers the Dispute to arbitration using clause 20.4, the Parties irrevocably agree that the courts of England and Wales have the exclusive jurisdiction to:

20.3.1 determine the Dispute;

20.3.2 grant interim remedies, or any other provisional or protective relief.

20.4 The Supplier agrees that the Authority has the exclusive right to refer any Dispute to be finally resolved by arbitration under the London Court of International Arbitration Rules current at the time of the Dispute. There will be only one arbitrator. The seat or legal place of the arbitration will be London and the proceedings will be in English.

20.5 The Authority has the right to refer a Dispute to arbitration even if the Supplier has started or has attempted to start court proceedings under clause 20.4, unless the Authority has agreed to the court proceedings or participated in them. Even if court proceedings have started, the Parties must do everything necessary to ensure that the court proceedings are stayed in favour of any arbitration proceedings if they are started under clause 20.4.

20.6 The Supplier cannot suspend the performance of this Assignment and Licence during any Dispute.

21 Which law applies

21.1 This Assignment and Licence and any issues arising out of, or connected to it, are governed by English law.

ANNEX

IPR Assurance Certificate

This certificate is given pursuant to clause 13.9 of the agreement ("**Contract**") between the Department for Education ("**Authority**") and the supplier named below ("**Supplier**"), and the Intellectual Property Assignment and Licence between the Authority and the Supplier (which also forms Schedule 14 of the Contract) ("**Assignment and Licence**").[1]

Guidance:

When to complete this certificate: This certificate should be completed in respect of each Deliverable (as defined in the Contract) which is made available to the Authority under the Contract, and a completed certificate should be supplied to the Authority with that Deliverable. This includes updates to existing Deliverables.

Purpose of this certificate: This certificate is intended to confirm that the specific Deliverable fully complies with the intellectual property provisions of the Contract. A copy of the certificate will be retained by the Authority as evidence of the intellectual property position.

Supplier Declaration:

We (being the Supplier named below) confirm that the Deliverable(s) supplied together with (or shortly before or after) this certificate, all elements of which are listed in either Table 1 or Table 2 below[2], comply with the intellectual property provisions in the Contract, in particular the applicable warranties set out in clause 5 of the Assignment and Licence.

We confirm that the Deliverable(s) either:
(i) contain no third party intellectual property rights, or
(ii) contain third party intellectual property rights and we have obtained the consent of the applicable third party:

- in the case of Key Materials, to their assignment and transfer to the Authority; and/or
- in the case of Ancillary Materials, to their licence to the Authority,

in each case on the terms and conditions of the Contract and Assignment and Licence.

We confirm that this certificate overrides any statement or copyright notice forming part of the Deliverable(s) which is in any way inconsistent with this certificate. We agree that this certificate does not detract in any way from the rights granted to the Authority in the Contract.

Key Materials

We confirm that the Deliverable(s) set out in Table 1 below, or the elements of the Deliverable(s) set out in Table 1 below, are Key Materials, as defined in the Contract:

[1] The parties have agreed to replace the certificate in the form set out in the Annex to Schedule 14 of the Contract with this completed version, which lists Deliverables that are being made available to the Authority. For the avoidance of doubt, an additional completed version of this certificate may be produced for a Deliverable in the event that the Deliverable is updated and made available to the Authority. No Deliverable(s) listed on this and any other certificate shall be removed or replaced unless otherwise specified by the Authority.

[2] If, by exception, the Supplier asserts that the Deliverable includes elements which are neither Key Materials nor Ancillary Materials, this should be notified in writing to the Authority prior to the relevant Deliverable being made available to the Authority.

Table 1

TQ Deliverable	Component	Filename/Title	Version	Date submitted	Key Material Applicable Rights
Set out the Product / Deliverable name (e.g. “TQ Specification”, “Specimen Assessment Materials”, “Guide Standard Exemplification Materials”	E.g. “Core”, Occupational Specialism “title/name”,	Filename as saved / visible to end users who will download the file	Version number as submitted and recorded on the Deliverable	Date the final version was submitted to the Authority	Set out elements which are Key Materials, or confirm “entire Deliverable”

All intellectual property rights in the Deliverable(s), or elements of the Deliverable(s) listed above in Table 1 as Key Materials, have vested or hereby vest in the Authority pursuant to the Assignment and Licence.

Ancillary Materials

We confirm that the Deliverable(s) set out in Table 2 below, or the elements of the Deliverable set out in Table 2 below are Ancillary Materials, as defined in the Contract:

Table 2

TQ Deliverable	Component	Filename/Title	Version	Date submitted	Ancillary Material Applicable Rights
Set out the Product / Deliverable name (e.g. “Assessment Strategy”	Record “N/A” if not applicable	Filename as saved / visible to end users who will download the file	Version number as submitted and recorded on the Deliverable	Date the final version was submitted to the Authority	Set out elements which are Ancillary Materials, or confirm “entire Deliverable”

All intellectual property rights in the Deliverable(s), or elements of the Deliverable(s) listed above in Table 2 as Ancillary Materials, are licensed to the Authority on the terms and conditions of and pursuant to the Assignment and Licence.

Signed by

[*Supplier*]

Director: ……..[Insert/print name]

Signature: ……...

Signed by

DEPARTMENT FOR EDUCATION

Director: ……..[Insert/print name]

Signature: ……...

Schedule 15

Monitoring of Performance

1 Self monitoring

1.1 The Supplier shall monitor its performance of the Services (other than the Initial Development Services) and (where applicable) the supply of the Products against each KPI (in the manner set out in paragraph 1.2) and shall deliver to the Authority Authorised Representative the Operational Delivery Report in accordance with paragraph 3 (*Operational Delivery Report and Performance Review Meetings*).

1.2 The Supplier shall, in respect of each KPI, apply the applicable Performance Monitoring Methodology to such KPI to assess the Supplier's performance of such relevant KPI during the relevant Performance Monitoring Period.

2 What happens if you don't meet the Service Levels

2.1 The Supplier shall at all times provide the Services and (where applicable) supply the Products to meet or exceed the Target Service Level for each KPI.

2.2 If, in any Contract Month in which a Performance Monitoring Period for a KPI ends, the Supplier fails to achieve the Target Service Level for that KPI ("**Service Failure**"), unless otherwise agreed with the Authority in writing, the Supplier shall submit to the Authority (as part of the Operational Delivery Report for that Contract Month) for Approval an improvement plan ("**KPI Improvement Plan**") setting out:

2.2.1 the reasons for such Service Failure; and

2.2.2 what steps the Supplier proposes to take to:

(i) mitigate the impact of the Service Failure;

(ii) rectify the event, matter or circumstances giving rise to the Service Failure (including details of the proposed timings for such rectification); and

(iii) prevent the Service Failure from recurring.

2.3 The Authority shall (as soon as reasonably practicable following receipt of the KPI Improvement Plan) either:

2.3.1 confirm to the Supplier that the KPI Improvement Plan is Approved and following receipt of such Approval the Supplier shall:

(i) carry out and complete all of the actions in accordance with the approved KPI Improvement Plan; and

(ii) report on its progress against such KPI Improvement Plan in each and every Performance Review Meeting which occurs whilst the Supplier is (or should be, if it was complying with its obligations under this Contract) carrying out and completing the actions in accordance with the KPI Improvement Plan; or

2.3.2 confirm to the Supplier that the Authority is not satisfied with the KPI Improvement Plan and/or that the steps proposed by the Supplier in the KPI Improvement Plan will address the matters referred to in paragraph 2.2.1, in which case the provisions of clause 14.2 (*What may happen if there are issues with your provision of the Services*) shall apply.

2.4 Where:

2.4.1 the Supplier fails to provide a KPI Improvement Plan in accordance with paragraph 2.2; or

2.4.2 following Approval by the Authority of the KPI Improvement Plan in accordance with paragraph 2.3, the Supplier fails to carry out and/or complete the actions in accordance with the KPI Improvement Plan (as Approved),

then such failure shall be deemed to be a Critical Service Failure.

3 Operational Delivery Report and Performance Review Meetings

3.1 Within 5 Working Days after the end of each Contract Month, the Supplier shall deliver to the Authority Authorised Representative the Operational Delivery Report in respect of the performance by the Supplier of the Services and (where applicable) the supply of the Products) during the Contract Month just ended together with updated versions (meeting, where applicable, all of the requirements of the relevant Product Description) of the following:

3.1.1 the Implementation and Delivery Plan;

3.1.2 the Resource Plan;

3.1.3 the Risk Register

3.1.4 the Issues Log

3.1.5 the Assessment Strategy; and

3.1.6 any draft version of the Key Dates Schedule that the Supplier intends shall (if Approved) become the Key Dates Schedule for the purposes of this Contract from time to time.

3.2 Within 5 Working Days of receipt by the Authority Authorised Representative of the Operational Delivery Report for the relevant Contract Month, unless otherwise agreed by the Authority in writing, the Parties shall attend a meeting to discuss the content of the relevant Operational Delivery Report (the "**Performance Review Meeting**") at such location and time (within normal business hours) as the Authority shall reasonably require and such Performance Review Meeting shall:

3.2.1 be attended by the Authority Authorised Representative and the Supplier Authorised Representative and/or such other senior representatives of either Party as the Authority Authorised Representative and/or the Supplier Authorised Representative shall reasonably require (having regard to the matters to be discussed at the relevant Performance Review Meeting); and

3.2.2 be fully minuted by the Supplier and the minutes shall be circulated by the Supplier to all attendees at the relevant Performance Review Meeting (and any other recipients agreed at the relevant meeting) as soon as reasonably practicable following the relevant Performance Review Meeting.

3.3 The minutes of the preceding Contract Month's Performance Review Meeting will be agreed and signed by both the Authority Authorised Representative and the Supplier Authorised Representative at or prior to the following Performance Review Meeting.

3.4 Without prejudice to clause 9 (*Record keeping, monitoring and reporting*), the Supplier shall provide to the Authority such additional information and/or documentation as the Authority may reasonably require in order to verify the Supplier's compliance with its obligations under this Contract, including to verify:

3.4.1 whether a Service Failure has occurred; and/or

3.4.2 the level of the performance by the Supplier of the whole or any part of the Services and (where applicable) the supply of the Products.

and the Supplier shall provide such information and/or documentation within such time period as the Authority shall reasonably specify at the time of making the request for such information and/or documentation.

3.5 The Authority may publish all such information relating to the Supplier's performance so as to comply with the Authority's duties under section 71 of the Procurement Act 2023 or any other part of the Procurement Regime.

Schedule 15: Annex 1 – Key Performance Indicators

KPI (desired outcome)	Relevant Service Requirements (incl references to the relevant paragraph of Part 1 of the Service Requirements detailing the relevant element of the Services)	Target performance levels	Performance Monitoring Period	Evidence of performance	Measurement methodology
1. The Supplier has in place clear and TQ specific arrangements to approve Eligible Providers and monitor Approved Providers and (i) completes the relevant processes for approval quickly upon application and (ii) carries out the required monitoring	TQ Provider approval and monitoring services – paragraph 3	(i)90% of applications from Eligible Providers decided within 30 Working Days of receipt of application; and (ii)100% of applications from Eligible Providers decided by 1 September of the Academic Year when they will start to deliver; and (iii) Supplier has carried out the required monitoring in accordance with the Implementation	Each Contract Month following DfE Approval	Management Information in relation to: (i) Eligible Providers that have applied for approval and in respect of which a decision has been made; and (ii) details of monitoring undertaken.	Performance measurement will include Eligible Providers new to the Supplier as well as the Supplier's existing Eligible Providers who have applied to have their approval extended to include the TQ.

KPI (desired outcome)	Relevant Service Requirements (incl references to the relevant paragraph of Part 1 of the Service Requirements detailing the relevant element of the Services)	Target performance levels	Performance Monitoring Period	Evidence of performance	Measurement methodology
		and Delivery Plan and/or the Assessment Strategy.			
2. Supplier has ensured that Approved Providers are clear about what they are expected to teach and to what standard of attainment, and about how Students will be assessed	Initial TQ deliverables and development services – paragraph 2 TQ Provider support services – paragraph 4 TQ live assessment design and delivery – paragraph 6	80% of Approved Providers that have responded to the survey, rating at least 4 on a 1-5 scale. The target performance scale will use 2 positive, 2 negative and 1 neutral response. (For example (noting that the exact wording of the descriptors may vary)	During the Summer Term each Academic Year from September 2027	The Authority shall undertake or commission a survey of Approved Providers delivering the TQ	Online questionnaire to Approved Providers delivering the TQ in the relevant Academic Year. This survey should achieve a minimum response rate of 20% of those surveyed to be valid

KPI (desired outcome)	Relevant Service Requirements (incl references to the relevant paragraph of Part 1 of the Service Requirements detailing the relevant element of the Services)	Target performance levels	Performance Monitoring Period	Evidence of performance	Measurement methodology
		where 5 = very clear 4 = mostly clear 3 = moderately clear 2 = mostly unclear 1 = not clear at all)			
3. Queries from Eligible Providers and Approved Providers (other than those related to KPI 4 and KPI 10) are satisfactorily resolved in accordance with the Target Service Level	Initial TQ deliverables and development services – paragraph 2 TQ Provider approval and monitoring services – paragraph 3 TQ Provider support services – paragraph 4 Student registration and student entry – paragraph 5 TQ live assessment design and delivery – paragraph 6	Queries raised by letter and other forms of electronic correspondence: 90% resolved within 10 Working Days; remaining 10% resolved within 15 Working Days; and Queries raised through telephone calls: 90% resolved within 2 Working Days; remaining 10%	Each Contract Month from the Effective Date	Management Information based on data and information collected from the Supplier's customer management systems referred to in Service Requirement 5 in Part 2 of the Service Requirements. This must include relevant information that closed queries have been satisfactorily resolved.	The required resolution time commences on and from the Working Day on which the relevant query is received by the Supplier Percentage of queries that are resolved in accordance with the applicable Target Service Level

KPI (desired outcome)	Relevant Service Requirements (incl references to the relevant paragraph of Part 1 of the Service Requirements detailing the relevant element of the Services)	Target performance levels	Performance Monitoring Period	Evidence of performance	Measurement methodology
	TQ Post-Results Services – paragraph 9	resolved within 10 Working Days			
4. Formal complaints made about the Services are satisfactorily resolved (i) in accordance with the timescales set out in the Implementation and Delivery Plan[3] or (ii) where complaints are received solely by the Department or the Authority, within the timescales reasonably required by the Department, or the Authority at the time of notifying the Supplier of such complaints	Initial TQ deliverables and development services – paragraph 2 TQ Provider approval and monitoring services – paragraph 3 TQ Provider support services – paragraph 4 Student registration and student entry – paragraph 5 TQ live assessment design and delivery – paragraph 6	100% of formal complaints are resolved within: (i) the relevant timescales detailed in the Implementation and Delivery Plan; or (ii) the timescales specified by the the Authority, (as the case may be).	Each Contract Month from the Effective Date	Management Information based on data and information collected from the Supplier's customer management systems referred to in Service Requirement 5 in Part 2 of the Service Requirements. This must include relevant information that complaints have been satisfactorily resolved.	The required resolution time commences on and from the Working Day on which the relevant complaint is received by the Supplier. Percentage of complaints that are satisfactorily resolved within the applicable Target Service Level. Any complaints received solely by the Department, or the Authority, in relation to the Services, shall be

[3] The Supplier Response should detail the Supplier's proposals for resolving formal complaints.

KPI (desired outcome)	Relevant Service Requirements (incl references to the relevant paragraph of Part 1 of the Service Requirements detailing the relevant element of the Services)	Target performance levels	Performance Monitoring Period	Evidence of performance	Measurement methodology
	TQ Post-Results Services – paragraph 9				deemed to have been received by the Supplier on the date on which the Supplier is notified of the complaint by the Department or the Authority.
5. Approved Providers are satisfied with the quality of the Provider Services	TQ Provider approval and monitoring services – paragraph 3 TQ Provider support services – paragraph 4 Student registration and student entry – paragraph 5 TQ live assessment design and delivery – paragraph 6 TQ Post-Results Services – paragraph 9	80% of Approved Providers that have responded to the survey, rating at least 4 on a 1-5 scale. The target performance scale will use 2 positive, 2 negative and 1 neutral response. For example (noting that the exact wording of the descriptors may vary) (where 5 = very satisfied	During the Summer Term each Academic Year from September 2027	The Authority shall undertake or commission a survey of Approved Providers delivering the TQ	Online questionnaire to Approved Providers delivering the TQ in the relevant Academic Year. This survey should achieve a minimum response rate of 20% of those surveyed to be valid.

KPI (desired outcome)	Relevant Service Requirements (incl references to the relevant paragraph of Part 1 of the Service Requirements detailing the relevant element of the Services)	Target performance levels	Performance Monitoring Period	Evidence of performance	Measurement methodology
		4 = satisfied 3 = neither satisfied nor dissatisfied 2 = dissatisfied 1 = very dissatisfied).			
6.A sufficient number of appropriately qualified and trained Assessors (and Moderators where permitted in accordance with the Approved Assessment Strategy) are available to assess (or Moderate, if applicable) Student assessment evidence when required in accordance with the Implementation and Delivery and/or the Resource Plan (as the case may be)	TQ live assessment design and delivery – paragraph 6	100% of appropriately qualified and trained Assessors (and Moderators, if applicable) are available in accordance with the Implementation and Delivery Plan and/or the Resource Plan (as the case may be).	Each Contract Month from (and including) September 2027	Management Information in relation to Assessor (and Moderator, if applicable) actual recruitment, training, and retention against the details set out in the Implementation and Delivery Plan and Resource Plan (as the case may be).	Performance will be measured against the number of Assessors (and Moderators, if applicable) that are envisaged as being trained and available as detailed in the Implementation and Delivery Plan and/or the Resource Plan (as the case may be).

KPI (desired outcome)	Relevant Service Requirements (incl references to the relevant paragraph of Part 1 of the Service Requirements detailing the relevant element of the Services)	Target performance levels	Performance Monitoring Period	Evidence of performance	Measurement methodology
7. The TQ Live Assessment Materials (as defined in the Service Requirements) are high quality and developed in accordance with the Assessment Strategy	TQ live assessment design and delivery – paragraph 6	Full compliance with parts of both the Assessment Strategy and Implementation Plan that relate to the development of the TQ Live Assessment Materials; and TQ Live Assessment Materials are 100% free of errors that could affect clarity about requirements for Students.	Each Contract Month from DfE Approval	Management Information in relation to: (i) progress against and compliance with the relevant part of the Assessment Strategy and Implementation Plan; and (ii) any errors reported in TQ Live Assessment Materials.	Review of Supplier self-reporting Identification of any reported errors in TQ Live Assessment Materials.
8. Student assessment evidence is accurately assessed and processed for grading and awarding in accordance with the relevant parts of the Assessment Strategy	TQ live assessment design and delivery – paragraph 6 TQ Grade awarding – paragraph 7	Assessing of Student assessment evidence is conducted in accordance with the relevant parts	Each Contract Month from September 2027 until the end of the Term	Management Information in relation to compliance with the relevant parts of the Assessment Strategy and the relevant parts of the Implementation and Delivery Plan.	Review of Supplier self-reporting.

KPI (desired outcome)	Relevant Service Requirements (incl references to the relevant paragraph of Part 1 of the Service Requirements detailing the relevant element of the Services)	Target performance levels	Performance Monitoring Period	Evidence of performance	Measurement methodology
and the Implementation and Delivery Plan		of the Assessment Strategy; and 100% of Students' assessments are marked and processed in accordance with the relevant parts of the Implementation and Delivery Plan.			
9. Student assessment results are submitted to the Authority (or its nominee (as applicable)) by the relevant date(s) set out in the Key Dates Schedule	TQ Grade awarding – paragraph 7 TQ Results – paragraph 8	100% of results are submitted to the Authority (or its nominee) by the date(s) set out in the relevant Key Dates Schedule.	Each Contract Month from September 2027 until the end of the Term	Results have been received by the Authority (or its nominee (as applicable)) in the required format.	Receipt of the results by the relevant date(s) in the relevant Key Dates Schedule.
10. Post-Results Services (excluding the issuing of revised assessment results, which is covered by KPI 9) are delivered in accordance with the	TQ Post-Results Services – paragraph 9	100% of the Post-Results Services are carried out and completed in accordance with the relevant part of	Each Contract Month from (and including) September 2027 until the end of the Term	Management Information in relation to compliance with the relevant part of the Assessment Strategy.	Review of self-reporting.

KPI (desired outcome)	Relevant Service Requirements (incl references to the relevant paragraph of Part 1 of the Service Requirements detailing the relevant element of the Services)	Target performance levels	Performance Monitoring Period	Evidence of performance	Measurement methodology
relevant part of the Assessment Strategy		the Assessment Strategy.			
11. Submission to the Authority of: (i) all Management Information in accordance with the requirements of Service Requirement 9 in Part 2 of the Service Requirements; and (ii) updated versions of all required Products in accordance with clause 5.5.1(i) and/or paragraph 3 of Schedule 15 (as the case may be); and (iii) where requested by the Authority, updated versions of all requested Products and/or other documents in	TQ Provider approval and monitoring services – paragraph 3 Student registration and student entry – paragraph 5 Reporting – paragraph 10	100% for timeliness of the submission of all Management Information and all required (including requested) Products and/or other documents including Key Materials and Ancillary Materials; and 100% for completeness of all: (i) Management Information; and (ii) required Products (including requested Products and/ or	Each Contract Month from the Effective Date	Management Information and updated versions of the Products and/or other documents referred to in column one and/ or Key Materials and Ancillary Materials are received by the Authority by the date required by this Contract. Management Information, updated versions of the Products and/or other documents referred to in column one, Key Materials and Ancillary Materials are accurate and complete and cover all relevant information, Data and reports as specified in the Management Information and reporting requirements. Updated versions of the Products referred to in	Review of self-reporting.

KPI (desired outcome)	Relevant Service Requirements (incl references to the relevant paragraph of Part 1 of the Service Requirements detailing the relevant element of the Services)	Target performance levels	Performance Monitoring Period	Evidence of performance	Measurement methodology
accordance with clause 5.5.1(ii).		Key Materials and Ancillary materials).		column one, Key Materials and Ancillary Materials include all relevant updates.	

Schedule 16

Logos and Trademarks – T Level Trade Mark Licence

1 Interpretation

The definitions and rules of interpretation in this paragraph apply in this T Level Trade Mark Licence, in addition to the definitions and rules of interpretation in Schedule 1 to this Contract.

1.1 Definitions:

"**Approved Provider**" means an Eligible Provider (as defined in Schedule 1 (*Definitions and Interpretation*) of this Contract) that has been granted Provider Approval (as defined in Schedule 1 (*Definitions and Interpretation*) of this Contract) and in respect of which such Provider Approval has not been revoked pursuant to clause 7.2 of this Contract (*Interaction with Providers*).

"**Brand Licensed Material**" means any instance of a Brand Licensed Product or Service in material form, including as an electronic copy or any other electronic form, and any promotional or marketing material relating to any Brand Licensed Product or Service;

"**Brand Licensed Product or Service**" means any products or services listed as such in Appendix 1 (and "**Brand Licensed Products**" and "**Brand Licensed Services**" means such Products or Services respectively;

"**Mandatory Marked Material**" is material of the type identified in Appendix 1 (and to which the Mark must be applied);

"**Mark**" means the trade mark(s) set out in Appendix 2, including the listed registrations and applications and any registrations which may be granted pursuant to those applications and the related trade marks, devices and get-ups that may be notified in writing by the Authority to the Supplier from time to time;

"**Marked Material**" means any Brand Licensed Material or other material in or on which the Mark is used.

2 Grant

2.1 The Authority hereby grants to the Supplier a non-exclusive licence to use the Mark on or in relation to the Brand Licensed Products or Services provided or supplied in

England, including in connection with the promotion, use and supply of the Brand Licensed Products or Services.

2.2 The Supplier may, subject to the prior written approval of the Authority and paragraph 1.1, sublicense (without the right to further sublicense) each Approved Provider of the TQ to use the Mark on or in relation to the Brand Licensed Products or Services provided or supplied in England, including in connection with the promotion, use and supply of the Brand Licensed Products or Services.

2.3 Any use of the Mark in accordance with paragraph 2.1 or 2.2 shall be strictly in accordance with the T Level Branding Guidelines and, when using the Mark, the Supplier shall fully comply with, the T Level Branding Guidelines.

2.4 Subject to paragraph 2.2, the Supplier shall have no right to sublicense use of the Mark.

3 Application of the Mark

3.1 The Supplier shall use the Mark, in accordance with this Schedule, on all Mandatory Marked Materials.

3.2 Subject to clause 13.10 (*Intellectual Property Rights*) of the Contract and paragraph 3.3 below, apart from the Mark, no other trade mark or logo may be affixed or used in a manner in which it may be seen to be used as a trade mark or designation of origin in relation to any Brand Licensed Products or Services or in or on any Brand Licensed Materials.

3.3 The Supplier may, subject to the prior written agreement of the Authority, authorise each Approved Provider of the TQ sublicensed in accordance with paragraph 2.2 to use the Approved Provider's name, logos, trademarks and/or other signs which refer to the Approved Provider on Brand Licensed Products or Services or Brand Licensed Materials on the same terms as, and subject to compliance with clauses 13.10 and 13.11 (*Intellectual Property Rights*) of the Contract (and clauses 13.10 and 13.11 shall apply *mutatis mutandis* to such Approved Provider).

3.4 The Supplier shall procure that the Mark, when used in or on any Brand Licensed Materials, shall be clearly and reasonably prominently identified as a trade mark of the Authority, in such manner as is set out in the T Level Branding Guidelines, or with any other statement as notified by the Authority to the Supplier.

3.5 The Supplier shall comply strictly with the directions of the Authority regarding the form and manner of the application of the Mark, including the directions contained in the T Level Branding Guidelines.

3.6 The Supplier shall, on written request from the Authority or as otherwise provided in the T Level Branding Guidelines, provide samples of all proposed Marked Materials.

3.7 The Supplier shall not use in its business any other trade mark confusingly similar to the Mark and shall not use the Mark or any word confusingly similar to the Mark as, or as part of, its corporate or trading name.

4 Title, goodwill and registrations

4.1 The Supplier acknowledges that the Authority is the owner of the Mark.

4.2 Any goodwill derived from the use by the Supplier of the Mark shall accrue to the Authority. The Authority may, at any time, call for a document confirming the assignment of that goodwill and the Supplier shall immediately execute it.

4.3 The Supplier shall not do, or omit to do, or permit to be done, any act that will or may weaken, damage or be detrimental to the Mark or the reputation or goodwill associated with the Mark or the Authority, or that may invalidate or jeopardise any registration of the Mark.

4.4 The Supplier shall not apply for, or obtain, registration of the Mark in any country for any goods or services.

4.5 The Supplier shall not apply for, or obtain, registration of any trade or service mark in any country which consists of, or comprises, or is confusingly similar to, the Mark for any goods or services.

5 Quality control

5.1 The Supplier shall comply with the specifications and standards relating to the Brand Licensed Products or Services which are specified in the Contract.

5.2 The Supplier shall promptly provide the Authority with copies of all communications relating to the Mark with any regulatory, industry or other authority.

5.3 The Supplier shall permit, and shall use its best endeavours to obtain permission for, the Authority at all reasonable times and on reasonable notice to enter any place used for the production, storage or distribution of the Marked Materials to inspect the Marked Materials in relation to compliance with this T Level Trade Mark Licence.

5.4 Without prejudice to any other rights of the Authority, in the event that the Authority finds that any sample of Marked Materials does not meet the requirements of this T Level Trade Mark Licence, it may give notice to the Supplier, and the Supplier shall take all reasonable steps to correct any deficiency as soon as reasonably practicable (having regard to constraints of the academic timetable).

6 Marketing, advertising and promotion

6.1 The Supplier undertakes to ensure that its advertising, marketing and promotion of Brand Licensed Products or Services shall in no way reduce or diminish the reputation, image and prestige of the Mark.

7 Recordal of licence

7.1 The Authority may, at its own cost, record the licence granted to it in paragraph 2 in the relevant registries against any registrations and applications for registration of the Marks.

7.2 The Supplier shall, at the Authority's request, execute a formal licence in such form and provide such other assistance as may be required for the purpose of such recordal.

8 Protection of the Mark

8.1 The Supplier shall immediately notify the Authority in writing giving full particulars if any of the following matters come to its attention:

8.1.1 any actual, suspected or threatened infringement of the Mark;

8.1.2 any actual or threatened claim that the Mark is invalid;

8.1.3 any actual or threatened opposition to the Mark;

8.1.4 any claim made or threatened that use of the Mark infringes the rights

of any third party;

8.1.5 any person applies for, or is granted, a registered trade mark by reason of which that person may be, or has been, granted rights which conflict with any of the rights granted to the Supplier under this T Level Trade Mark Licence; or

8.1.6 any other form of attack, charge or claim to which the Mark may be subject.

8.2 In respect of any of the matters listed in paragraph 8.1:

8.2.1 the Authority shall, in its absolute discretion, decide what action if any to take;

8.2.2 the Authority shall have exclusive control over, and conduct of, all claims and proceedings;

8.2.3 the Supplier shall not make any admissions other than to the Authority and shall provide the Authority with all assistance that it may reasonably require in the conduct of any claims or proceedings; and

8.2.4 the Authority shall bear the cost of any proceedings and shall be entitled to retain all sums recovered in any action for its own account.

8.3 The provisions of section 30 of the Trade Marks Act 1994 (or equivalent legislation in any jurisdiction) are expressly excluded.

8.4 Nothing in this T Level Trade Mark Licence shall constitute any representation or warranty that:

8.4.1 any registration comprised in the Mark is valid;

8.4.2 any application comprised in the Mark shall proceed to grant or, if granted, shall be valid; or

8.4.3 the exercise by the Supplier of rights granted under this T Level Trade Mark Licence will not infringe the rights of any person.

9 Liability, indemnity and insurance

9.1 Nothing in this paragraph shall impose or create any liability of the Supplier to the Authority for use in England of the Mark on or in respect of Mandatory Marked Materials in accordance with the terms of this T Level Trade Mark Licence.

9.2 To the fullest extent permitted by law, the Authority shall not be liable to the Supplier for any costs, expenses, loss or damage (whether direct, indirect or consequential, and whether economic or other loss of profits, business or goodwill) arising from the Supplier's exercise of the rights granted to it under this T Level Trade Mark Licence.

9.3 Save as provided in paragraph 0, the Supplier indemnifies the Authority against all Loss to the Authority arising out of or in connection with the Supplier's exercise of its rights granted under this T Level Trade Mark Licence, including any claim made against the Authority for actual or alleged infringement of a third party's intellectual property rights arising out of or in connection therewith, other than where any such Loss and/or claim arises exclusively from the use of the Mark in accordance with this T Level Trade Mark Licence.

10 Additional Supplier obligations

10.1 The Supplier shall:

10.1.1 only make use of the Mark for the purposes authorised in this T Level Trade Mark Licence; and

10.1.2 comply with all regulations and practices in force or use in any territory to safeguard the Authority's rights in the Mark.

10.2 The Supplier shall not, nor directly or indirectly assist any other person to:

10.2.1 use the Mark except as permitted under this T Level Trade Mark Licence; or

10.2.2 do or omit to do anything to diminish the rights of the Authority in the Mark or impair any registration of the Mark.

10.3 The Supplier acknowledges and agrees that the exercise of the licence granted to the Supplier under this T Level Trade Mark Licence is subject to all applicable laws, enactments, regulations and other similar instruments in any territory, and the Supplier understands and agrees that it shall at all times be solely liable and responsible for such due observance and performance.

11 Sub-licensing

11.1 The Supplier shall have the right to grant to Approved Providers a sub-licence of any of its rights under this T Level Trade Mark Licence provided that:

11.1.1 the Supplier shall ensure that the terms of any sub-licence are in writing and are substantially the same as the terms of this T Level Trade Mark Licence (except that the sub-licensee shall not have the right to sub-license its rights) and the Supplier shall provide the Authority with a copy of the sub-licence on request and the Authority may require that any such sublicence includes the Authority as a party, and that the Authority is entitled to enforce its terms;

11.1.2 all sub-licences granted shall terminate automatically on termination or expiry of this T Level Trade Mark Licence; and

11.1.3 the Supplier shall be liable for all acts and omissions of any sub-licensee in relation to such sub-licence and indemnifies the Authority against all Losses incurred or suffered by the Authority, or for which the Authority may become liable, (whether direct, indirect or consequential and including any economic loss or other loss of profits, business or goodwill) arising out of any act or omission of any sub-licensee in relation to such sub-licence, other than to the extent any such Losses arise exclusively from the use of the Mark in accordance with this T Level Trade Mark Licence.

12 Duration and termination

12.1 This T Level Trade Mark Licence shall commence on the Effective Date and shall continue for the Term.

12.2 Without affecting any other right or remedy available to it under this T Level Trade Mark Licence or the Contract, the Authority may terminate this T Level Trade Mark Licence in respect of any Brand Licensed Product or Service with immediate effect by giving notice to the Supplier if:

12.2.1 the Supplier commits a material breach of any term of this T Level Trade Mark Licence in respect of such Brand Licensed Product or Service which breach is irremediable, or (if such breach is remediable) fails to remedy that breach within a period of 7 days after being notified to do so;

12.2.2 the Supplier repeatedly breaches any of the terms of this T Level Trade Mark Licence in respect of relevant Brand Licensed Products or Services or Brand Licensed Materials in such a manner as to reasonably justify the opinion that its conduct is inconsistent with it having the intention or ability to give effect to the terms of this T Level Trade Mark Licence; or

12.1.3 the Supplier challenges the validity of the Mark.

For the purposes of paragraph 12.2.1, **material breach** means a breach that is serious in the widest sense or of any of the obligations set out in paragraphs 3, 4.3, 4.4, 4.5, 6.1, 10.1 or 11.1. In deciding whether any breach is material no regard shall be had to whether it occurs by some accident, mishap, mistake or misunderstanding.

13 Consequences of termination

13.1 On expiry or termination of this T Level Trade Mark Licence for any reason and subject to any express provisions set out elsewhere in this T Level Trade Mark Licence:

13.1.1 all rights and licences granted pursuant to this T Level Trade Mark Licence shall cease;

13.1.2 the Supplier shall cease all use of the Mark save as set out in this paragraph 13;

13.1.3 the Supplier shall co-operate with the Authority in the cancellation of any licences registered pursuant to this T Level Trade Mark Licence and shall execute such documents and do all acts and things as may be necessary to effect such cancellation;

13.1.4 the Supplier shall promptly deliver up to the Authority (or at the Authority's option, destroy) at the Supplier's expense all copies of promotional material which is Marked Material or otherwise bears any Mark as a designation of origin; and

13.1.5 any provision of this T Level Trade Mark Licence that expressly or by implication is intended to come into or continue in force on or after termination or expiry of this T Level Trade Mark Licence shall remain in full force and effect.

13.2 Termination or expiry of this T Level Trade Mark Licence shall not affect any rights, remedies, obligations or liabilities of the parties that have accrued up to the date of termination or expiry, including the right to claim damages in respect of any breach of the T Level Trade Mark Licence which existed at or before the date of termination or expiry.

Schedule 16 Appendix 1

Brand Licensed Products or Services

Those products and services identified as such in the T Level Branding Guidelines.

Mandatory Marked Materials

All Key Materials and such other materials as are identified as such in the T Level Branding Guidelines.

T Level Branding Guidelines

(January 2026)

T Level Branding Guidelines

1 Introduction

1.1 T Levels are high-quality technical qualifications for 16 to 19-year olds which are managed by the Department for Education (DfE). The T Level brand has been devised to ensure that Government, Awarding Organisations, Employers, Suppliers, Providers (schools and colleges), Students, and others involved with the qualification, support and promote T Levels in a positive manner that inspires confidence.

1.2 The T Level Branding Guidelines, including supporting annexes (the 'Guidelines') are essential reference material for all Suppliers responsible for the delivery of the Technical Qualification (TQ) component of the T Level qualification.

1.3 For simplicity, the registered trade marks associated with the T Level brand are referred to in the Guidelines as the 'T Level Marks' and are as follows:

- The word 'T Level';
- DfE's 'T Level' logo (in black);
- HM Government's name and accompanying logo and
- the respective Supplier's corporate name and logo.

1.4 These Guidelines set out essential information as to how the T Levels Marks should be used in: a) TQ materials and b) other T Level communications including for marketing, advertising and promotional purposes.

1.5 These Guidelines are subject to reasonable development. They adopt many of the general principles which apply in relation to good branding practice, and where they are developed further DfE intends that they will, in terms of general principles, be similar in many respects to commonly used branding guidelines.

2 General principles for use of the T Level Marks

2.1 When using the T Level Marks Suppliers (and any other authorised users, such as Providers) must comply with these Guidelines (in addition to any other requirements of the TQ Contract and the HM Government Identity Guidelines 2022).

2.2 The T Level Marks must be used by Suppliers on the front/landing/home page **only** of all Mandatory Marked Materials, key TQ documents and supporting resources (unless otherwise agreed by DfE), in accordance with and in the form set out at **Annex 1**.

2.3 Nothing in these Guidelines is intended to restrict the use of the text mark 'T Level' where that use is necessary to indicate the intended purpose of a product or service and is in accordance with honest practices in industrial or commercial matters. (This does not apply, unless authorised and used in accordance with these Guidelines, to the use of the T Level logo.)

2.4 By way of example, use of the text mark 'T Level' to describe the relevance or purpose of a text book or support material for a specific technical education qualification forming part of a T Level is generally acceptable. However, any such use which is liable to confuse third parties as to whether the relevant T Level is approved, managed or otherwise controlled by a party other than DfE would not be acceptable. Furthermore, any such use which is liable to confuse third parties as to whether the text book or support materials are endorsed and/or approved by DfE would not be acceptable.

2.5 The Secretary of State for Education, shall have the exclusive power to issue certificates of award and statements of achievement (and equivalent documents, excluding a breakdown of attainment) within the T Level Programme. It is intended that such documents will include the Supplier's name but not the Supplier's logo.

2.6 Suppliers must not issue any document bearing the title or name, or described or represented as, a 'certificate' or 'statement of achievement' or its substantial equivalent to which, or in respect of which, any T Level Mark is applied or used, or otherwise apply the T Level Marks to, or create an association with any T Level or TQ with any document or material bearing the title or name, or described or represented as, a 'certificate' or 'statement of achievement'" or its substantial equivalent.

2.7 Suppliers must use the T Level Marks on all *Mandatory Marked Materials* used in the operational delivery of the TQ. The documents classified as *Mandatory Marked Materials* are listed in **Annex 2.**

2.8 *Mandatory Marked Materials* should include a descriptive qualification name, as determined and/or mutually agreed by DfE and the Supplier, in line with the TQ Contract and these Guidelines e.g. [technical qualification] in x [Pathway]".

2.9 Suppliers must ensure that it is clear that any T Level, or qualification associated with a T Level (such as the TQ), is a qualification approved and managed by DfE. T Level Marks must not be used on any materials which relate to a T Level or TQ which has been wholly or partly superseded, unless the material is equally prominently identified as such.

2.10 Suppliers must, on request from DfE, submit copies of any material where their name or branding, or any other trade marks or branding are used and/or in association with a T Level or a TQ.

2.11 Suppliers must not promote that, or give the impression that, any of its other qualifications - similar or equivalent – are linked to the TQ or T Level qualification i.e. other Level 2, 3 or 4 qualifications.

3 Intellectual Property Rights (IPR) and the TQ Contract

3.1 Full details of Suppliers' rights and responsibilities in respect of IPR are set out in the TQ Contract, and Suppliers should pay particularly close attention to clause 13 Intellectual Property Rights; Schedule 14 Form of Assignment and License; and Schedule 16 Logos and Trademarks – T Level Trade Mark Licence.

3.2 Providers engaged with the T Level qualification may use the T Level Marks but it is the responsibility of Suppliers to ensure that they comply with these Guidelines and the TQ Contract.

3.3 Suppliers should note that the T Level Marks are registered trade marks; any breach could lead to an action for trade mark infringement (as well as other consequences under the TQ Contract).

4 Advertising, marketing and promotion

4.1 Suppliers must ensure that any advertising, marketing and promotion products or services i.e. those activities outside the scope of the core TQ delivery component, do not undermine or diminish the reputation, image and prestige of the T Level Marks when used in any such aforementioned activity e.g. media advertising.

4.2 Suppliers may use the T Level Marks in relation to *Brand Licensed Products or Services* set out in **Annex 3**, in accordance with (and subject to) the terms of the TQ Contract and these Guidelines.

4.3 Suppliers must not give the impression that their visual identity is being used as a distinct brand, trade mark or designation of origin for any materials, including for activity defined as *Brand Licensed Products or Services.*

5 Style, positioning and form of T Level Marks

5.1 Suppliers must ensure that, except for the T Level Marks, no other trade marks, logos, banners or graphics are to be presented and/or affixed to any materials which relate to a T Level or TQ.

T Level Marks on TQ Materials

5.2 The T Level Marks should be included on the front page only of the TQ materials (whether in paper or digital form) in accordance with and in the form set out at **Annex 1**.

5.3 The T Level Marks should be acknowledged on the final page of the TQ materials (whether in paper or digital form) in accordance with and in the form set out at **Annex 1**.

T Level Marks on other T Level communications (including for marketing, advertising and promotional purposes)

Positioning/Layout:

5.4 T Level Marks may be represented in the form of a logo or graphic image ("**Logo Mark**"); or as an isolated word mark ("**Isolated Word Mark**"); or as a text or word mark[1] used within relevant text ("**Text Mark**") as described below. There are some common requirements in relation to each type of use (sections 6 to 8 - "No mixing", "Prominence" and "Acknowledgements") and some requirements which differ depending on the form in which Suppliers plan to use the mark (set out below).

5.5 Use of the word mark may also be made in oral form. The same principles should, so far as practicable, apply to oral use of any T Level Marks i.e. if appropriate, the respective changes being proposed are applied consistently.

5.6 Where it is used otherwise than in text form, the form in which the Supplier reproduces the logo or graphic should conform precisely to the logo and graphic forms designated by DfE.

[1] Text form includes in spoken text

5.7 **Logo Mark**:

- Suppliers must use the Logo Mark in precisely the form and subject to any requirements set out in **Annex 1**;
- Suppliers must not change the colours, or skew, stretch or angle the logo, or distort, add a border or otherwise alter the logo in any way;
- Suppliers must ensure that the logos are always clearly separate from any other material, and in particular that it has a clear space surrounding the logos, as illustrated, specified or referenced at **Annex 1**.
- Suppliers must not resize the logo, unless resizing is permitted in accordance with these Guidelines.

5.8 **Isolated Word Mark**

- Suppliers must use the fonts and size ranges of font set out in or referenced in these Guidelines and/ or as otherwise specified by DfE*;*
- Suppliers must use only the colours and weights set out in or referenced in these Guidelines and/ or as otherwise specified by DfE;
- Suppliers must not use underlining;
- The words should have initial capitalisation (only) and no other punctuation etc. "T Level" is acceptable; "T LEVEL", "T level" or T-Level" are not acceptable; and
- Suppliers must not use the Isolated Word Mark as a watermark.

5.9 **Text Mark**:

- Suppliers must use the Text Mark in the same font as the surrounding text; and
- Suppliers must acknowledge its first use in the text as noted under paragraph 5.15 (Acknowledgement) of these Guidelines.

No mixing/combination/background use

5.10 Suppliers must ensure that the T Level Marks are always clearly separate from any other trade mark or name used in the same document. In particular:

- Suppliers must not use their trade mark mixed or combined with any other trade mark or name such that they could be seen or understood to be part of a single trade mark. For example, "the Mrs Blogs [Supplier] T Level" would not be acceptable use; and

- Suppliers must not combine a T Level Mark into a single logo or something which might be seen to be or have a unitary character. For example:



is not acceptable.

- The T Level Mark and a Supplier's mark should not be combined into a single logo or something which might be seen to be or have a unitary character. For example:



is not acceptable.

- There should always be a clear separation between the T Level Mark and any other mark used by Suppliers or on any documents, and, when used as a logo or graphic, Suppliers should take account of any requirements for separation set out in these Guidelines.

5.11 Any use of a name given to the qualification element of a T Level (including any use of "TQ" as a reference to part of a T Level) should also only be such that it is always a clearly separate mark or name from any other trade mark or name used in the same document with any other trade mark or trade name.

5.12 Suppliers must not place a T Level Mark against a background colour, pattern or picture except as specified below:

- as set out in or referenced in **Annex 1** or as otherwise agreed in writing by DfE or specified in these Guidelines; or

- with imagery which is of a purely illustrative character, and does not suggest any other source or business connection, and is appropriate to the context and brand identity, and allows the entire mark to be clearly visible more prominently than such imagery, and complies with any other limitations notified by DfE in writing from time to time,

and in any event any imagery must be consistent with the overall brand identity and values of the T Level Marks and the T Level Programme, and not be liable to bring the T Level Marks or the T Level Programme into disrepute.

Prominence

5.13 Where Suppliers use the T Level Marks on material which carries other branding in conjunction with or in the same part of the material, the T Level Marks should be given at least equal prominence with the other branding. For example:

- it should appear in script of at least the same font size as the script of any Supplier's trade mark, and where Suppliers use a logo covering at least the same overall surface area;
- the style used for the other mark should not lead to it being more prominent than the style used for the T Level Mark;
- the colouring used for the other mark should not draw more attention to it than the T Level Mark; and
- it should appear in at least as prominent a position.

5.14 Typically, use of one T Level Mark will not be regarded as 'in conjunction' with another mark when they are in separate distinct parts of the document, including for example, use of a Supplier's letter head (one part) and use of the T Level Mark in the body of the letter (a separate part).

Acknowledgement

5.15 Subject to paragraph 5.16 of these Guidelines, where the T Level Marks are used in any document, Suppliers should place in the document reasonably prominently (so that it would reasonably be expected to come to the attention of the reader or addressee of the document) an acknowledgement that the T Level mark is a registered trade mark of DfE. For example:

- where the T Level Mark is used in the title or opening description of the document or in a manner intended to show that the document relates to a T Level or a TQ, by using a referenced footnote acknowledging that 'T- LEVELS' and 'T Level' are registered trade marks of the Department for Education' or 'Registered trade marks of the Department for Education';

- where it is used in the text of a document, the first time it appears it should include a referenced footnote acknowledging that the '[Mark] is a registered trade mark of the Department for Education' or 'Registered trade mark of the Department for Education;

- in each case the referenced footnote should, where practicable, appear in the same visual field as the use of the T Level Marks, or in other cases, where such notice would otherwise commonly be placed. For example, on the rear of a single page which is printed on both sides, on the rear of the front page of a booklet, or on the rear of the last page of a booklet; and

- where a Supplier's or a Provider's name or branding is also used in the document, the referenced footnote should also make clear that the Supplier is currently authorised by the Department for Education to develop and deliver the qualification (and/or that the Provider offers or provides courses for part of the T Level), as appropriate.

5.16 Where a reference is made to T Level in any document indirectly (for example with a description which is evidently a reference to a T Level or the TQ) in association with a Supplier (whether using a Supplier's name or otherwise), the document should make clear that the supplier is currently authorised by the Department for Education to develop and deliver the qualification.

5.17 No further acknowledgement is necessary where the use of the T Level Marks or a reference to a T Level or TQ is in a document, other than those materials/document listed in **Annex 2** of these Guidelines. To illustrate: such use is in word form (as part of the text[2]) of the document and would clearly be understood by addressees and readers as being a reference to the T Level or, as appropriate and it has been made clear that the role of the Supplier is focused on developing and/or delivering the TQ component of the T Level and it has a relationship with Department for Education.

Illustrations

The approach may be adjusted sensibly for the particular materials and circumstances of use. For example:

5.18 On promotional documentation intended for Providers, where it might be expected that a high level of prominence would be given to a Supplier's name or branding (for example in large script), or on explanatory documentation intended for Providers, the use of T Level (and T Level Marks, including text marks) should be given equal prominence. A referenced footnote

[2] including spoken text in the case of spoken material

should appear on the reverse of the first page (for example with other similar notices, such as copyright notices, but no less prominently than those notices);

5.19 For promotional and explanatory documentation aimed at students or employers, the use of T Level should be given equal prominence; and a clear note should appear on the same page in the same visual field that a Supplier's development and delivery of the qualification and use of the mark is under the authority of the Department for Education;

5.20 For assessment or examination papers (for single use) relating to materials for examiners, a reasonably prominent note should appear at the bottom of the first page that 'T-LEVELS' and 'T Level' are registered trade marks of the Department for Education and that the Supplier's development and delivery of this qualification and use of the mark is under the authority of the Department for Education.

5.21 For sample papers which may be re-used, a reasonably prominent note that 'T-LEVELS' and 'T Level' are registered trade marks of the Department for Education and that the Supplier's development and delivery of this qualification and use of the mark is under the authority of the Department for Education.; and

5.22 For any supplementary materials (such as text books and learning aids), other than those materials/ documents listed in Annex 2, there should be a clear reasonably prominent explanation that the material is designed for use with the relevant T Level; including the date of the T Level, and that the T Level is a registered trade mark of the Department for Education used by a Supplier (or other source) with the authority of the Department for Education.

Providers (Schools and Colleges)

5.23 Suppliers are responsible for ensuring that:

- each Provider complies with these marking requirements, as they apply to use of a Supplier's name or branding and equally, to any permitted use of the Provider's name or branding in association with the T Level Mark; and
- any use by a Provider of the T Level Mark is clearly a reference to a T Level which is a registered trade mark of the Department for Education'.

6 Inspection and Approval

6.1 Suppliers must permit DfE to inspect on reasonable request and on reasonable notice any materials bearing or intended to bear a T Level Mark, for the purposes of ascertaining compliance with these Guidelines.

6.2 Where DfE determines (acting reasonably) that it appears that there is a non-compliance with these Guidelines, Suppliers must consult with DfE on how such non-compliance may be remedied, taking into account both the seriousness of the non-compliance, including how the relevant material does not comply, what the potential impact may be (bearing in mind the volumes of material in question and the audience for those materials) and the potential impact of remedial steps, with a view to reaching fair and reasonable consensus on remedial action (which may range from taking steps in relation to future materials to the withdrawal and reissue of current materials).

6.3 In the event that no consensus can be reached, the disagreement or difference will be subject to the Dispute Resolution Procedure.

7 Amendments to the Guidelines

7.1 DfE may amend these Guidelines from time to time, in a manner consistent with the general principles (Section 2).

7.2 DfE will notify Suppliers of any changes together with the date on which such amendments are to take effect.

7.3 DfE will take reasonable account of Suppliers' comments or concerns in relation to any amendments and the timetable for implementation, and Suppliers agree to act reasonably to seek a consensus. In the absence of consensus the disagreement or difference may be referred by Suppliers or DfE to be resolved under the Dispute Resolution Procedure, as set out in Annex 4.

Annex 1 (a): T Level Marks on Mandatory Marked TQ materials

Front page



*

**



*To be placed top left within the header

**To be placed top right within the header

[Supplier logo]***

***to be placed bottom left within the footer. Please ensure equal sizing, prominence and spacing for all of the partner logos used.

Final page

Copyright in this document belongs to, and is used under licence from, the Department for Education, © 20XX.

‘T-LEVELS’ and ‘T Level’ are registered trade marks of the Department for Education.

[SUPPLIER] is authorised by the Department for Education to develop and deliver this T Level Technical Qualification.

[‘MARK’] is a registered trade mark of [SUPPLIER].

Annex 1 (b): T Level Marks on Marked TQ materials

Front page



**To be placed top right within the header

[Supplier logo]**

**to be placed bottom left within the footer. Please ensure equal sizing, prominence and spacing for all of the partner logos used.

Final page

Copyright in this document belongs to [SUPPLIER], © 20XX.

‘T-LEVELS’ and ‘T Level’ are registered trade marks of the Department for Education.

[SUPPLIER] is authorised by the Department for Education to develop and deliver this Technical Qualification.

[‘MARK’] is a registered trade mark of [SUPPLIER].

Annex 2: Mandatory Marked Materials

Key Materials

a) specifications of content for each TQ including core and all specialist components;
b) assessment guidelines (for Providers);
c) quality assurance requirements (for Providers);
d) specimen assessment materials;
e) standards exemplification materials;
f) updates or redevelopments of specifications of content;
g) updates and redevelopments of any Key Materials; and
h) any materials equivalent to the above to which a Skilled Future Supplier would reasonably require access for the Portability Purposes.

Key Materials shall **not** include support Materials, insofar as they are not part of any of the expressly included items listed above;

Ancillary Materials

a) Assessment Strategy;

Annex 3: Brand Licensed Products and Services

Marketing materials relating to T Levels

Suppliers will be expected to adhere to the form of branding as set out in Annex 1 wherever reasonably practicable.

Annex 4: Dispute Resolution Procedure

Definitions[3]

"**Dispute**" means any claim, dispute or difference which arises out of or in connection with these Guidelines or in connection with the existence, legal validity or enforceability of these Guidelines, whether the alleged liability shall arise under English law or under the law of some other country and regardless of whether a particular cause of action may successfully be brought in the English courts.

"**Style**" means any matter set out in or referred to in paragraph 5 of the Guidelines.

"**Dispute Resolution Procedure**" means the dispute resolution procedure set out in paragraphs 1.1 to 1.5.

1 Resolving disputes

1.1 Where a Dispute (not being a Dispute arising solely in respect of Style):

1.1.1 arises solely between DfE and a Supplier, the dispute resolution procedure set out in clause 37 of the Supplier's Contract shall apply and the provisions of this Dispute Resolution Procedure shall not apply; or

1.1.2 relates to or is in connection with a dispute that is progressing under the Supplier's Contract, the parties agree to be bound by the decision that is reached in accordance with the dispute resolution procedure set out in clause 37 of the Supplier's Contract in respect of the dispute under the Supplier's Contract, provided always that DfE and/or the Supplier (as the case may be) have taken into account all reasonable comments and/or submissions of any third party who is a party to, or connected with, the Dispute.

1.2 Where the Dispute is one to which the circumstances described in paragraph 1.1 do not apply:

1.2.1 and the Dispute remains unresolved, the relevant parties connected with the Dispute shall procure that nominated senior representatives of each such party who have authority to settle the Dispute will, within 28 days of a written request from another connected party, meet in good faith to resolve the Dispute; and

1.2.2 if the Dispute is not resolved at that meeting, the relevant parties can attempt to settle it by mediation using the Centre for Effective Dispute Resolution ("**CEDR**") Model Mediation Procedure current at the time of the Dispute. If the relevant parties

cannot agree on a mediator, the mediator with experience in trade mark law will be nominated by CEDR. If a relevant party does not wish to use, or continue to use mediation, or mediation does not resolve the Dispute:

(i) the Dispute (other than a Dispute relating to Style) must be resolved using paragraphs 1.3 to 1.5; or

(ii) a Dispute relating to Style must be resolved using paragraph 1.6.

1.3 Unless DfE refers the Dispute (other than a Dispute relating to Style) to arbitration using paragraph 1.4, the parties irrevocably agree that the courts of England and Wales have the exclusive jurisdiction (other than in relation to a Dispute relating to Style) to:

1.3.1 determine the Dispute; and/or

1.3.2 grant interim remedies, or any other provisional or protective relief.

1.4 The parties agree that DfE has the exclusive right to refer any Dispute (other than a Dispute relating to Style) to be finally resolved by arbitration under the London Court of International Arbitration Rules current at the time of the Dispute. There will be only one arbitrator. The seat or legal place of the arbitration will be London and the proceedings will be in English.

1.5 DfE has the right to refer a Dispute (other than a Dispute relating to Style) to arbitration even if a party has started or has attempted to start court proceedings under paragraph 1.3, unless DfE has agreed to the court proceedings or participated in them. Even if court proceedings have started, the relevant party must do everything necessary to ensure that the court proceedings are stayed in favour of any arbitration proceedings if they are started under paragraph 1.4.

1.6 If the Dispute is one which relates to Style, DfE's decision will be final.

Schedule 16 Appendix 2

Mark

T Level

Registered trade mark(s) and applications[4]

Country	Mark	App or regn no	Date of app or regn	Classes	Specification
UK	T Level (word)	UK00003318112	15 June 2018	9, 16, 41	Class 9: Electronic apparatus and instruments for testing, examination and assessment purposes; computer software, hardware and firmware for the provision of examination and assessments including software for operation over computer networks or by remote computer access; all of the aforesaid for use in the provision of education, teaching, training and/or assessment. Class 16: Examination papers; syllabi; diplomas; education, academic and vocational certificates; printed examination regulations; all of the aforesaid for use in the provision of education, teaching, training and/or assessment.

[4] To be updated as required based on trade mark application position at the Effective Date.

					Class 41: Issuing of educational awards; awarding of educational certificates; educational assessment services; provision of examination, testing and assessment services; provision of examination, testing and assessment services electronically, by online delivery, by way of the Internet or world wide web; online publication of syllabi, examination papers, assessments; examination services; assessment services; educational certification services; certification in relation to examinations and other forms of assessment; preparation and validation, accreditation, conducting and administration of examinations, assessments and tests; provision of examination papers; information, advisory and consultancy services relating to all of the aforesaid; all of the aforesaid relating to the provision of education, teaching, training and/or assessment.

EU	T Level (word)	017999579	13 December 2018	9, 16, 41	Class 9: Educational, teaching, instruction or research apparatus and instruments; electronic apparatus and instruments for teaching, instruction, training, research, education, testing, examination and assessment purposes; media bearing electronic publications and data; electronic publications; electronic publications (downloadable) provided online from a database or the Internet; downloadable text and information provided electronically, by online delivery, by way of the Internet or world wide web; electronic database; audio visual teaching apparatus; films and video films; computer software, hardware and firmware; computer software, hardware and firmware for the provision of teaching, instruction, training, research, education, testing, examination and assessments including software for operation over computer networks or by remote computer access; educational software; all of the aforesaid for use in the provision of education, teaching, training and/or assessment. Class 16: Printed publications; educational publications; printed matter; educational materials; examination papers; syllabi; diplomas; education, academic and vocational certificates; printed examination regulations; books; magazines; publications; textbooks; exercise books and notebooks; catalogues, handbooks and manuals; study guides; instructional or teaching materials; all of the aforesaid for use in the provision of education, teaching, training and/or assessment.

					Class 41: Education services; teaching services; publication services; educational publication services; publication of printed matter relating to education; issuing of educational awards; awarding of educational certificates; electronic publication; publication of printed matter; educational assessment services; provision of training, teaching, academic, education, instruction, examination, testing and assessment services; provision of training, teaching, academic, education, instruction, examination, testing and assessment services electronically, by online delivery, by way of the Internet or world wide web; online publication of electronic texts, books, textbooks, brochures, syllabi, examination papers, assessments; examination services; assessment services; educational certification services; certification in relation to examinations and other forms of assessment, education, training and awards; preparation and validation, accreditation, conducting and administration of examinations, assessments and tests; provision of examination papers; information, advisory and consultancy services relating to all of the aforesaid services; all of the aforesaid relating to the provision of education, teaching, training and/or assessment services.

Schedule 17

Provider Contract requirements

1 Provider Contract

1.1 This Schedule sets out the requirements that Provider Contracts must meet.

1.2 Provider Contracts must:

1.2.1 be in writing, enforceable, and on terms that are fair and reasonable;

1.2.2 set out all the requirements with which the Approved Provider must comply in order to continue to deliver the TQ;

1.2.3 establish a sanctions policy to be applied in the event that the Approved Provider fails to comply with the requirements in the Provider Contract;

1.2.4 require the Approved Provider to:

(i) take all reasonable steps to ensure that the Supplier is able to comply with its Conditions of Recognition;

(ii) retain a workforce of appropriate size and competence to undertake the delivery of the TQ as required by the Supplier;

(iii) have available sufficient managerial and other resources to enable it effectively and efficiently to undertake the delivery of the TQ as required by the Supplier;

(iv) undertake the delivery of the qualification required by the awarding organisation in accordance with the Equality Act 2010, any Act that was a statutory predecessor to that Act, or any legislation in a jurisdiction other than England which has an equivalent purpose and effect; and

(v) operate a complaints handling procedure or appeals process for the benefit of Students;

1.2.5 where, in accordance with the Approved Assessment Strategy an Approved Provider is permitted to carry out or procure the carrying out of marking of Student assessment evidence, set out details for carrying out Moderation;

1.2.6 not materially depart from any relevant industry standards and common education sector practices;

1.2.7 be materially consistent across all Approved Providers in respect of the provision of the Provider Services and, in particular, shall not discriminate against any particular types, sizes or geographical locations of Approved Providers in connection with the provision of any Provider Services;

1.2.8 include appropriate GDPR provisions: where the Supplier, in fulfilling its obligations under this Contract, is acting as a Processor on behalf of an Approved Provider, the Provider Contract will include provisions to ensure that any personal data (as defined in the GDPR) that is Processed by the Supplier in relation to the Provider Services is Processed in accordance with Data Protection Legislation;

1.2.9 be consistent with, and to the extent necessary allow for, any information, document and data sharing requirements contained within this Contract (to include any information, documents and data that must be provided by the Supplier to the Authority and/or any third party and any information, documents and data requested by Ofqual);

1.2.10 require the Approved Provider to assist the Supplier in carrying out any reasonable monitoring activities and to assist Ofqual in any investigations made for the purposes of performing its functions;

1.2.11 allow Approved Providers to purchase Provider Services on an “as and when needed” basis without any minimum or maximum volume commitments (including in relation to the number of Students);

1.2.12 require Approved Providers to register all Students on a TQ by the end of November or within such other timescales as are required by the Key Dates Schedule for the relevant Academic Year and pay that part of the Fees referred to in limb (a) of the definition of Fees within 30 days of such registration and provide that, if a Student terminates their study of the TQ before the end of the following January in the same Academic Year, the Supplier must provide a full

refund of such Fees (relating to such Student) to the Approved Provider (for the avoidance of doubt, if the Student terminates their study of the TQ after the end of the following January in the same Academic Year, the Supplier is not obliged to give a refund);

1.2.13 include detailed provisions relating to the Approved Provider's role in quality assurance, such provisions shall give effect to the requirements of the Approved Provider's Quality Assurance Process;

1.2.14 require Approved Providers to provide advice and guidance to Students (including any Student no longer enrolled with the Approved Provider) in relation to making enquiries about results (and any further steps that may be taken following such an enquiry (including those contemplated by the Additional Services)) and where such Student reasonably requests the Approval Provider (whether directly or indirectly) to request the provision of an Additional Service, require the Approved Provider to request the provision of such Additional Service from the Supplier;

1.2.15 require Approved Providers to seek written approval from the Supplier before permitting a third party (for example training providers or satellite centres) to deliver any part of the TQ, including its assessments, and requires the Approved Providers to agree in writing to the Supplier's requirements before the Supplier approves the use of a third party;

1.2.16 place responsibility on the Approved Provider to monitor whether any third party involved with the delivery and assessment of the TQ on its behalf has appropriate capacity and capability; and

1.2.17 specify a process to be followed in any withdrawal of the Approved Provider (whether voluntary or not) from its role in delivering the TQ and require Approved Providers to take all reasonable steps to protect the interests of Students in the case of such a withdrawal.

1.3 Provider Contracts must not:

1.3.1 include terms in connection with Provider Services that are not strictly necessary for the provision of the relevant Provider Services and/or which are materially inconsistent with any of the Supplier's obligations under this Contract;

1.3.2 make the provision of the Provider Services contingent on the take up of any further qualifications or services by the Approved Provider;

1.3.3 require the Approved Provider to make any payments other than the Fees (e.g. for the avoidance of doubt, Provider Contracts shall not require any fees to be paid by the Approved Provider (or an Eligible Provider) for Provider Approval in relation to a TQ);

1.3.4 offer any discounts to the Fees; and/or

1.3.5 include provisions that are materially more onerous than any comparable provisions in this Contract.

1.4 The Supplier shall not offer to any Approved Provider any rebate, discount or other incentive in relation to services outside the Provider Services (whether or not in the Provider Contract) which is contingent on or linked to the Approved Provider entering into the Provider Contract and/or registering Students for the TQ.

Schedule 18

Commercially Sensitive Information

The content for this Schedule is as below.

GEN 2 WAVE 3 MIR Commercially Sensitive Confidential Information

Schedule 18

Commercially Sensitive and/or Confidential Information

Schedule 19

Required Insurances

PART A: THIRD PARTY PUBLIC AND PRODUCTS LIABILITY INSURANCE

1 Insured

The Supplier

2 Interest

To indemnify the Insured in respect of all sums which the Insured shall become legally liable to pay as damages, including claimant's costs and expenses, in respect of accidental:

2.1 death or bodily injury to or sickness, illness or disease contracted by any person; and

2.2 loss of or damage to property,

happening during the period of insurance (as specified in paragraph 5) and arising out of or in connection with the provision of the Services under this Contract.

3 Limit of indemnity

Not less than £5,000,000 in respect of any one occurrence, the number of occurrences being unlimited, but £5,000,000 in the aggregate per annum in respect of products and pollution liability.

4 Territorial limits

United Kingdom.

5 Period of insurance

From the Effective Date and renewable on an annual basis unless agreed otherwise by the Authority in writing for the Term.

6 Cover features and extensions

Indemnity to principals clause.

7 Principal exclusions

7.1 War and related perils.

7.2 Nuclear and radioactive risks.

7.3 Liability for death, illness, disease or bodily injury sustained by employees of the Insured during the course of their employment.

7.4 Liability arising out of the use of mechanically propelled vehicles whilst required to be compulsorily insured by applicable Law in respect of such vehicles.

7.5 Liability in respect of predetermined penalties or liquidated damages imposed under any contract entered into by the Insured.

7.6 Liability arising out of technical or professional advice other than in respect of death or bodily injury to persons or damage to third party property.

7.7 Liability arising from the ownership, possession or use of any aircraft or marine vessel.

7.8 Liability arising from seepage and pollution unless caused by a sudden, unintended and unexpected occurrence.

8 Maximum deductible threshold

Not to exceed £10,000 for each and every third party property damage claim (personal injury claims to be paid in full).

PART B: PROFESSIONAL INDEMNITY INSURANCE

1 Insured

The Supplier

2 Interest

To indemnify the Insured for all sums which the Insured shall become legally liable to pay (including claimants' costs and expenses) as a result of claims first made against the Insured during the period of insurance (as specified in paragraph 5) by reason of any negligent act, error and/or omission arising from or in connection with the provision of the Services.

3 Limit of indemnity

Not less than £5,000,000 in respect of any one claim and in the aggregate per annum, exclusive of defence costs which are payable in addition.

4 Territorial Limits

United Kingdom

5 Period of insurance

From the Effective Date and renewable on an annual basis unless agreed otherwise by the Authority in writing (a) for the Term; and (b) for a period of 6 years thereafter.

6 Cover features and extensions

Retroactive cover to apply to any “claims made policy wording” in respect of this Contract or retroactive date to be no later than the Effective Date.

7 Principal exclusions

7.1 War and related perils

7.2 Nuclear and radioactive risks

8 Maximum deductible threshold

Not to exceed £10,000 for each and every claim.

PART C: UNITED KINGDOM COMPULSORY INSURANCES

1 The Supplier shall meet its insurance obligations under applicable Law in full, including, UK employers' liability insurance and motor third party liability insurance.

Schedule 20

Authorised Representatives

The content for this Annex is as below.

GEN 2 WAVE 3 MIR Authorised Representatives

Schedule 20

Authorised Representatives

Schedule 21

Staff Transfer

1. **Definitions**

1.1 In this Schedule, the following definitions shall apply:

"Former Supplier" means the Awarding Organisation that is operating or operated the T Level technical education qualification under the Original Contract;

"Notified Sub-contractor" means a Sub-contractor to whom Transferring Former Supplier Employees will transfer on a Relevant Transfer Date;

"Replacement Sub-contractor" means a sub-contractor of the Replacement Supplier to whom Transferring Supplier Employees will transfer on a Service Transfer Date (or any sub-contractor of any such sub-contractor);

"Relevant Transfer" means a transfer of employment to which TUPE applies;

"Relevant Transfer Date" means in relation to a Relevant Transfer, the date upon which the Relevant Transfer takes place;

"Service Transfer" means any transfer of the Services (or any part of the Services), for whatever reason, from the Supplier or any Subcontractor to a Replacement Supplier or a Replacement Sub-contractor;

"Service Transfer Date" means the date of a Service Transfer;

"Staffing Information" means in relation to all persons identified on the Supplier's Provisional Supplier Personnel List or Supplier's Final Supplier Personnel List, as the case may be, such information as the Authority may reasonably request (subject to all applicable provisions of the Data Protection Legislation), but including in an anonymised format:

(a) their ages, dates of commencement of employment or engagement, gender and place of work;

(b) details of whether they are employed, self-employed contractors or consultants, agency workers or otherwise;

(c) the identity of the employer or relevant contracting Party;

(d) their relevant contractual notice periods and any other terms relating to termination of employment, including redundancy procedures, and redundancy payments;

(e) their wages, salaries, bonuses and profit sharing arrangements as applicable;

(f) details of other employment-related benefits, including (without limitation) medical insurance, life assurance, pension or other retirement benefit schemes, share option schemes and company car schedules applicable to them;

(g) any outstanding or potential contractual, statutory or other liabilities in respect of such individuals (including in respect of personal injury claims);

(h) details of any such individuals on long term sickness absence, parental leave, maternity leave or other authorised long term absence;

(i) copies of all relevant documents and materials relating to such information, including copies of relevant contracts of employment (or relevant standard contracts if applied generally in respect of such employees); and

(j) any other Employee Liability Information" as such term is defined in regulation 11 of TUPE;

"Supplier's Final Supplier Personnel List" means a list provided by the Supplier of all Supplier Personnel who will transfer under TUPE on the Service Transfer Date;

"Supplier's Provisional Supplier Personnel List" means a list prepared and updated by the Supplier of all Supplier Personnel who are at the date of the list wholly or mainly engaged in or assigned to the provision of the Services or any relevant part of the Services which it is envisaged as at the date of such list will no longer be provided by the Supplier;

"Transferring Former Supplier Employees" means in relation to a Former Supplier, those employees of the Former Supplier to whom TUPE will apply on the Relevant Transfer Date; and

"Transferring Supplier Employees" means those employees of the Supplier and/or the Supplier's Sub-contractors to whom TUPE will apply on the Service Transfer Date.

2. Interpretation

2.1 Where a provision in this Schedule imposes an obligation on the Supplier to provide an indemnity, undertaking or warranty, the Supplier shall procure that each of its Subcontractors shall comply with such obligation and provide such indemnity, undertaking or warranty to the Authority, Former Supplier, Replacement Supplier or Replacement Sub-contractor, as the case may be.

Transferring Former Supplier Employees at Commencement of Services

3. Relevant Transfers

3.1 The Authority and the Supplier agree that:

3.1.1 the commencement of the provision of the Services or of any relevant part of the Services will be a Relevant Transfer in relation to the Transferring Former Supplier Employees; and

3.1.2 as a result of the operation of TUPE, the contracts of employment between each Former Supplier and the Transferring Former Supplier Employees (except in relation to any terms disapplied through the operation of regulation 10 of TUPE) shall have effect on and from the Relevant Transfer Date as if originally made between the Supplier and/or Notified Sub-contractor and each such Transferring Former Supplier Employee.

3.2 The Authority shall procure that each Former Supplier shall comply with all its obligations under TUPE and shall perform and discharge all its obligations in respect of all the Transferring Former Supplier Employees in respect of the period up to (but not including) the Relevant Transfer Date (including the payment of all remuneration, benefits, entitlements and outgoings, all wages, accrued but untaken holiday pay, bonuses, commissions, payments of PAYE, national insurance contributions and pension contributions which in any case are attributable in whole or in part in respect of the period up to (but not including) the Relevant Transfer Date) and the Supplier shall make, and the Authority shall procure that each Former Supplier makes, any necessary apportionments in respect of any periodic payments.

4. Former Supplier Indemnities

4.1 Subject to paragraph 4.2, the Authority shall procure that each Former Supplier shall indemnify the Supplier and any Notified Sub-contractor against any Employee Liabilities arising from or as a result of:

4.1.1 any act or omission by the Former Supplier in respect of any Transferring Former Supplier Employee or any appropriate employee representative (as defined in TUPE) of any Transferring Former Supplier Employee arising before the Relevant Transfer Date;

4.1.2 the breach or non-observance by the Former Supplier arising before the Relevant Transfer Date of:

(a) any collective agreement applicable to the Transferring Former Supplier Employees; and/or

(b) any custom or practice in respect of any Transferring Former Supplier Employees which the Former Supplier is contractually bound to honour;

4.1.3 any proceeding, claim or demand by HMRC or other statutory authority in respect of any financial obligation including, but not limited to, PAYE and primary and secondary national insurance contributions:

(a) in relation to any Transferring Former Supplier Employee, to the extent that the proceeding, claim or demand by HMRC or other statutory authority relates to financial obligations arising before the Relevant Transfer Date; and

(b) in relation to any employee who is not a Transferring Former Supplier Employee and in respect of whom it is later alleged or determined that TUPE applied so as to transfer his/her employment from the Former Supplier to the Supplier and/or any Notified Sub-contractor as appropriate, to the extent that the proceeding, claim or demand by HMRC or other statutory authority relates to financial obligations in respect of the period to (but excluding) the Relevant Transfer Date;

4.1.4 a failure of the Former Supplier to discharge or procure the discharge of all wages, salaries and all other benefits and all PAYE tax deductions and national insurance contributions relating to the Transferring Former Supplier Employees in respect of the period to (but excluding) the Relevant Transfer Date;

4.1.5 any claim made by or in respect of any person employed or formerly employed by the Former Supplier other than a Transferring Former Supplier Employee for whom it is alleged the Supplier and/or any Notified Sub-contractor as appropriate may be liable by virtue of this Contract and/or TUPE; and

4.1.6 any claim made by or in respect of a Transferring Former Supplier Employee or any appropriate employee representative (as defined in TUPE) of any Transferring Former Supplier Employee relating to any act or omission of the Former Supplier in relation to its obligations under regulation 13 of TUPE, except to the extent that the liability arises from the failure by the Supplier or any Subcontractor to comply with regulation 13(4) of TUPE.

4.2 The indemnities in Paragraph 4.1 shall not apply to the extent that the Employee Liabilities arise or are attributable to an act or omission of the Supplier or any Subcontractor whether occurring or having its origin before, on or after the Relevant Transfer Date including, without limitation, any Employee Liabilities:

4.2.1 arising out of the resignation of any Transferring Former Supplier Employee before the Relevant Transfer Date on account of substantial detrimental changes to his/her working conditions proposed by the Supplier or any Subcontractor to occur in the period from (and including) the Relevant Transfer Date; or

4.2.2 arising from the failure by the Supplier and/or any Subcontractor to comply with its obligations under TUPE.

4.3 If any person who is not identified as a Transferring Former Supplier Employee claims, or it is determined in relation to any person who is not identified as a Transferring Former Supplier Employee, that his/her contract of employment has been transferred from a Former Supplier to the Supplier and/or any Notified Sub-contractor pursuant to TUPE then:

4.3.1 the Supplier shall, or shall procure that the Notified Sub-contractor shall, within 5 Working Days of becoming aware of that fact, give notice in writing to the Authority and, where required by the Authority, to the Former Supplier; and

4.3.2 the Former Supplier may offer (or may procure that a third party may offer) employment to such person within 15 Working Days of the notification by the Supplier and/or the Notified Sub-contractor or take such other reasonable steps as the Former Supplier considers appropriate to deal with the matter provided always that such steps are in compliance with applicable Law.

4.4 If an offer referred to in paragraph 4.3.2 is accepted, or if the situation has otherwise been resolved by the Former Supplier and/or the Authority, the Supplier shall, or shall procure that the Notified Sub-contractor shall, immediately release the person from his/her employment or alleged employment.

4.5 If by the end of the 15 Working Day period specified in paragraph 4.3.2:

4.5.1 no such offer of employment has been made;

4.5.2 such offer has been made but not accepted; or

4.5.3 the situation has not otherwise been resolved,

the Supplier and/or any Notified Sub-contractor may within 5 Working Days give notice to terminate the employment or alleged employment of such person.

4.6 Subject to the Supplier and/or any Notified Sub-contractor acting in accordance with the provisions of paragraphs 4.3 to 4.5 and in accordance with all applicable proper employment procedures set out in Law, the Authority shall procure that the Former Supplier indemnifies the Supplier and/or any Notified Sub-contractor (as appropriate) against all Employee Liabilities arising out of the termination of employment pursuant to the provisions of paragraph 4.5 provided that the Supplier takes, or shall procure that the Notified Sub-contractor takes, all reasonable steps to minimise any such Employee Liabilities.

4.7 The indemnity in paragraph 4.6:

4.7.1 shall not apply to:

(a) any claim for:

(b) discrimination, including on the grounds of sex, race, disability, age, gender reassignment, marriage or civil partnership, pregnancy and maternity or sexual orientation, religion or belief; or

(c) equal pay or compensation for less favourable treatment of part-time workers or fixed-term employees;

(d) in any case in relation to any alleged act or omission of the Supplier and/or any Subcontractor; or

(e) any claim that the termination of employment was unfair because the Supplier and/or Notified Sub-contractor neglected to follow a fair dismissal procedure; and

4.7.2 shall apply only where the notification referred to in paragraph 4.3.1 is made by the Supplier and/or any Notified Sub-contractor (as appropriate) to the Authority and, if applicable, the Former Supplier, within 6 months of the Relevant Transfer Date.

4.8 If any such person as is described in paragraph 4.3 is neither re-employed by the Former Supplier nor dismissed by the Supplier and/or any Notified Sub-contractor within the time scales set out in paragraph 4.5, such person shall be treated as having transferred to the Supplier or Notified Sub-contractor and the Supplier shall comply with such obligations as may be imposed upon it under the Law.

5. <u>Supplier Indemnities and Obligations</u>

5.1 Subject to paragraph 5.2, the Supplier shall indemnify the Authority and/or the Former Supplier against any Employee Liabilities arising from or as a result of:

5.1.1 any act or omission by the Supplier or any Subcontractor in respect of any Transferring Former Supplier Employee or any appropriate employee representative (as defined in TUPE) of any Transferring Former Supplier Employee whether occurring before, on or after the Relevant Transfer Date;

5.1.2 the breach or non-observance by the Supplier or any Subcontractor on or after the Relevant Transfer Date of:

(a) any collective agreement applicable to the Transferring Former Supplier Employee; and/or

(b) any custom or practice in respect of any Transferring Former Supplier Employees which the Supplier or any Subcontractor is contractually bound to honour;

5.1.3 any claim by any trade union or other body or person representing any Transferring Former Supplier Employees arising from or connected with any failure by the Supplier or a Subcontractor to comply with any legal obligation to such trade union, body or person arising on or after the Relevant Transfer Date;

5.1.4 any proposal by the Supplier or a Subcontractor prior to the Relevant Transfer Date to make changes to the terms and conditions of employment or working conditions of any Transferring Former Supplier Employees to their material detriment on or after their transfer to the Supplier or a Subcontractor (as the case may be) on the Relevant Transfer Date, or to change the terms and conditions of employment or working conditions of any person who would have been a Transferring Former Supplier Employee but for their resignation (or decision to treat their employment as terminated under regulation 4(9) of

TUPE) before the Relevant Transfer Date as a result of or for a reason connected to such proposed changes;

5.1.5 any statement communicated to or action undertaken by the Supplier or a Subcontractor to, or in respect of, any Transferring Former Supplier Employee before the Relevant Transfer Date regarding the Relevant Transfer which has not been agreed in advance with the Authority and/or the Former Supplier in writing;

5.1.6 any proceeding, claim or demand by HMRC or other statutory authority in respect of any financial obligation including, but not limited to, PAYE and primary and secondary national insurance contributions:

(a) in relation to any Transferring Former Supplier Employee, to the extent that the proceeding, claim or demand by HMRC or other statutory authority relates to financial obligations arising on or after the Relevant Transfer Date; and

(b) in relation to any employee who is not a Transferring Former Supplier Employee, and in respect of whom it is later alleged or determined that TUPE applied so as to transfer his/her employment from the Former Supplier to the Supplier or a Subcontractor, to the extent that the proceeding, claim or demand by the HMRC or other statutory authority relates to financial obligations arising on or after the Relevant Transfer Date;

5.1.7 a failure of the Supplier or any Subcontractor to discharge or procure the discharge of all wages, salaries and all other benefits and all PAYE tax deductions and national insurance contributions relating to the Transferring Former Supplier Employees in respect of the period from (and including) the Relevant Transfer Date;

5.1.8 any claim made by or in respect of a Transferring Former Supplier Employee or any appropriate employee representative (as defined in TUPE) of any Transferring Former Supplier Employee relating to any act or omission of the Supplier or any Subcontractor in relation to obligations under regulation 13 of TUPE, except to the extent that the liability arises from the Former Supplier's failure to comply with its obligations under regulation 13(4) of TUPE; and

5.1.9 a failure by the Supplier or any Subcontractor to comply with its obligations under paragraph 4.8 above.

5.2 The indemnities in Paragraph 5.1 shall not apply to the extent that the Employee Liabilities arise or are attributable to an act or omission of the Former Supplier whether occurring or having its origin before, on or after the Relevant Transfer Date including, without limitation, any Employee Liabilities arising from the Former Supplier's failure to comply with its obligations under TUPE.

5.3 The Supplier shall comply, and shall procure that each Subcontractor shall comply, with all its obligations under TUPE (including without limitation its obligation to inform and consult in accordance with regulation 13 of TUPE) and shall perform and discharge, and shall procure that each Subcontractor shall perform and discharge, all its obligations in respect of all the Transferring Former Supplier Employees, on and from the Relevant Transfer Date (including the payment of all remuneration, benefits, entitlements and outgoings, all wages, accrued but untaken holiday pay, bonuses, commissions, payments of PAYE, national insurance contributions and pension contributions and any other sums due under the Admission Agreement which in any case are attributable in whole or in part to the period from (and including) the Relevant Transfer Date) and any necessary apportionments in respect of any periodic payments shall be made between the Supplier and the Former Supplier.

6. Information

6.1 The Supplier shall, and shall procure that each Subcontractor shall, promptly provide to the Authority and/or at the Authority's direction, the Former Supplier, in writing such information as is necessary to enable the Authority and/or the Former Supplier to carry out their respective duties under regulation 13 of TUPE. The Authority shall procure that the Former Supplier shall promptly provide to the Supplier and each Notified Sub-contractor in writing such information as is necessary to enable the Supplier and each Notified Sub-contractor to carry out their respective duties under regulation 13 of TUPE.

7. Procurement Obligations

7.1 Notwithstanding any other provisions of this Schedule, where in this Schedule the Authority accepts an obligation to procure that a Former Supplier does or does not do something, such obligation shall be limited so that it extends only to the extent that the Authority's contract with the Former Supplier contains a contractual right in that regard which the Authority may enforce, or otherwise so that it requires only that the Authority must use reasonable endeavours to procure that the Former Supplier does or does not act accordingly.

8. Pensions

8.1 The Supplier shall, and shall procure that each Subcontractor shall, comply with the requirements of Part 1 of the Pensions Act 2008, section 258 of the Pensions Act 2004 and the Transfer of Employment (Pension Protection) Regulations 2005 for all transferring staff.

Schedule 22

Entry Management

1. Entry Transition Plan

1.1 The Supplier shall, within 5 working days after the Effective Date, deliver to the Authority an initial Entry Transition Plan (adopting and updating the plan produced as part of the Supplier's Tender and detailed at the Annex to this Schedule 22) that:

1.1.1 sets out the Supplier's proposed methodology for achieving an orderly transition of the Services from the current Supplier;

1.1.2 complies with the requirements set out in paragraph xx below; and

1.1.3 is otherwise reasonably satisfactory to the Authority.

1.2 The Authority shall consider the initial Entry Transition Plan and shall notify the Supplier of any amendments it believes are necessary. The Parties shall use reasonable endeavours to agree the contents of the Entry Transition Plan. If the Parties are unable to agree the contents of the Entry Transition Plan within 10 Working Days of the Authority requesting any amendments, then such Dispute shall be resolved in accordance with the Dispute Resolution Procedure.

1.3 The Entry Transition Plan shall set out as a minimum:

1.3.1 a detailed description of the materials that the Supplier requires to be transferred from the Former Supplier;

1.3.2 a detailed description of the transfer process, including a timetable;

1.3.3 the management structure to be employed during the Entry Transition Period;

1.3.4 details of how Supplier will work with the Former Supplier;

1.3.5 details of how the Supplier will support Approved Providers in a seamless manner;

2 Updates to the Entry Transition Plan

2.1 The Supplier shall review and (if appropriate) update the Entry Transition Plan:

2.1.1 after each assessment series during the Entry Transition Period;

2.1.2 monthly during the development phase

2.2 Following each review required under paragraph 2.1, the Supplier shall submit for the Authority's approval a revised draft of the Entry Transition Plan showing any proposed amendments necessary to ensure the Entry Transition Plan continues to meet the requirements of this Schedule. The Authority shall consider each such revised draft and shall notify the Supplier of any further amendments it believes are necessary. The Supplier shall incorporate all reasonable amendments requested by the Authority in a further revised draft of the Entry Transition Plan. If the Parties are unable to agree the contents of a revised Entry Transition Plan within 10 Working Days of the Authority requesting any amendments, then such Dispute shall be resolved in accordance with the Dispute Resolution Procedure.

2.3 When the Entry Transition Plan is agreed, it shall be signed by both Parties, following which it shall supersede any previous versions of the Entry Transition Plan.

3 **Working with the Former Supplier**

3.1 Without prejudice to its obligations in Schedule 4 (Co-operation) the Supplier shall work with the Former Supplier to ensure the following:

- 3.1.1 any request for materials or data are detailed and to be completed in a reasonable timeframe;
- 3.1.2 a smooth transition of the Former Supplier's Approved Providers;
- 3.1.3 attend any joint meetings as required;
- 3.1.4 consult on the development of the initial Key Dates Schedule; and
- 3.1.5 alignment of communications with Providers.

Annex to Schedule 22

Draft Entry Transition Plan

The content for this Annex is as below.

GEN 2 WAVE 3 MIR Entry Transition Plan

Schedule 22 Annex 1

Entry Transition Plan

DATED

DEPARTMENT FOR EDUCATION

and

PEARSON EDUCATION LIMITED

INTELLECTUAL PROPERTY ASSIGNMENT AND LICENCE IN RELATION TO THE ENGINEERING AND MANUFACTURING: MAINTENANCE, INSTALLATION AND REPAIR T LEVEL TECHNICAL QUALIFICATION

THIS ASSIGNMENT AND LICENCE is made on

BETWEEN:

(1) **DEPARTMENT FOR EDUCATION** of **20 Great Smith Street, London SW1P 3BT** ("**Authority**"); and

(2) **PEARSON EDUCATION LIMITED** ("**Supplier**"),
each a "**Party**" and together the "**Parties**".

BACKGROUND TO THIS ASSIGNMENT AND LICENCE

(A) The Authority and the Supplier have entered into a contract on the date of this Assignment and Licence for the design, development and delivery of the technical education qualification element ("**TQ**") for the **Engineering and Manufacturing: Maintenance, Installation and Repair** T Level ("the **TQ Agreement**").

(B) The Supplier has agreed to assign certain intellectual property rights to the Authority, and to licence certain intellectual property rights to the Authority in connection with the TQ. The Authority has agreed to grant a licence back to the Supplier in relation to certain assigned intellectual property rights.

(C) This Assignment and Licence, together with the TQ Agreement sets out the agreed terms of such assignment and licences.

1 Assignment and Licence start, formation and interpretation

1.1 This Assignment and Licence is legally binding from the Effective Date until it ends in accordance with its terms.

1.2 In this Assignment and Licence, unless the context otherwise requires, capitalised expressions shall have the meanings set out in this clause 1 or, where no definition is given in this clause 1, Schedule 1 to the TQ Agreement.

1.3 If a capitalised expression does not have an interpretation in this clause 1 or Schedule 1 to the TQ Agreement, it shall, in the first instance, be interpreted in accordance with the common interpretation within the relevant market sector where appropriate. Otherwise, it shall be interpreted in accordance with the dictionary meaning.

1.4 In this Assignment and Licence, unless the context otherwise requires:

1.4.1 the singular includes the plural and vice versa;

1.4.2 reference to a gender includes the other gender and the neuter;

1.4.3 references to a person include an individual, company, body corporate, Corporation, unincorporated association, firm, partnership or other legal entity or Crown Body;

1.4.4 references to a legal entity (other than the Supplier) shall include unless otherwise expressly stated any statutory successor to such entity and/or the relevant functions of such entity, and references to the Department shall include, where relevant, Skills England;

1.4.5 a reference to any Law includes a reference to that Law as amended, extended, consolidated or re-enacted from time to time;

1.4.6 the words "**including**", "**other**", "**in particular**", "**for example**" and similar words shall not limit the generality of the preceding words and shall be construed as if they were immediately followed by the words "**without limitation**";

1.4.7 references to **"writing"** include typing, printing, lithography, photography, display on a screen, electronic and facsimile transmission and other modes of representing or reproducing words in a visible form, and expressions referring to writing shall be construed accordingly;

1.4.8 references to **"clauses"** and **"Schedules"** are, unless otherwise provided, references to the clauses and schedules of the Assignment and Licence and references in any Schedule to parts, paragraphs, annexes and tables are, unless otherwise provided, references to the parts, paragraphs, annexes and tables of the Schedule in which these references appear;

1.4.9 references to **"paragraphs"** are, unless otherwise provided, references to the paragraph of the appropriate Schedule unless otherwise provided; and

1.4.10 the headings in the Assignment and Licence are for ease of reference only and shall not affect the interpretation or construction of this Agreement and Licence.

1.5 In this Assignment and Licence, unless the context otherwise requires, the following words shall have the following meanings:

"**Ancillary Materials**" means all information and materials (other than Key Materials) to which the Authority and/or a Future Supplier would require access for the Portability Purposes, and any other materials which would be required on or to facilitate succession to a Future Supplier in a seamless manner in relation to the TQ offered or Operated by the Supplier.

Ancillary Materials shall include, without limitation:

(a) Student results including grades;

(b) statistical analysis for grading (excludes the systems supporting the analysis);

(c) lists of Providers;

(d) marked Student evidence (with moderation outcomes);

(e) documentation which provides an overview or analysis of Student performance (including chief examiner and chief moderator reports), which include but are not limited to, examples of student responses to assessment questions and/or tasks as well as narrative explaining why students did well/ less well on individual items/ components/ subcomponents);

(f) data on Student credits;

(g) data on Student appeals;

(h) data on special considerations for Students;

(i) the Assessment Strategy;

(j) Student registrations;

(k) draft materials in preparation for forthcoming assessments;

(l) the Key Dates Schedule (in respect of forthcoming assessments);

(m) lists, with contact details, of people contracted by the Supplier to perform or oversee activities which are necessary for the conduct and quality assurance of assessments for the TQ;

(n) materials from completed assessments, such as completed Students' examination answer booklets; and

(o) TQ Live Assessment Materials

"**Approval**" has the same meaning as in the TQ Agreement;

"**Assigned Rights**" means the Intellectual Property Rights in the Key Materials;

"**Authority Authorised Representative**" has the same meaning as in the TQ Agreement;

"**Background IPR**" means any IPR owned by a Party prior to the Effective Date or created or developed by a Party otherwise than in the provision of the Services or under or in connection with the TQ Agreement, but does not include IPR in Key Materials;

"**Beneficiary**" means a Party having (or claiming to have) the benefit of an indemnity under this Assignment and Licence;

"**Claim**" means any claim for which it appears that a Beneficiary is, or may become, entitled to indemnification under this Assignment and Licence;

"**Continuing Activities**" means activities of the Supplier under the TQ Agreement which continue following the end of the second Academic Year for the final Exclusive Cohort (each as defined in the TQ Agreement) in relation to the TQ as offered by the Supplier, such as retakes, appeals, and any ongoing records management contracted to the Supplier;

"**Default**" means any breach of the obligations of the Supplier (including abandonment of the Assignment and Licence in breach of its terms) or any other default (including material default), act, omission, negligence or statement of the Supplier, of its Subcontractors or any Supplier Staff howsoever arising in connection with or in relation to the subject-matter of this Assignment and Licence and in respect of which the Supplier is liable to the Authority;

"**Deliverables**" means all information and data the Supplier creates, identifies for use, or uses as part of or for the Operation of the TQ, including Products and Management Information;

"**Dispute**" means any claim, dispute or difference which arises out of or in connection with this Assignment and Licence or in connection with the negotiation, existence, legal validity, enforceability or termination of this Assignment and Licence, whether the

alleged liability shall arise under English law or under the law of some other country and regardless of whether a particular cause of action may successfully be brought in the English courts;

"**Effective Date**" means the date on which the last Party to sign has signed this Assignment and Licence;

"**Final Approval Milestone**" has the meaning given in the TQ Agreement;

"**Future Supplier**" means any Awarding Organisation appointed, at any point in the future and including any Replacement Supplier, to operate one or more T Level technical education qualifications by or at the direction of the Authority from time to time, and where the Authority is operating a T Level technical education qualification, shall also include the Authority;

"**Indemnifier**" means a Party from whom an indemnity is sought under this Assignment and Licence;

"**Insolvency Event**" means:

(a) in respect of a company:

(i) a proposal is made for a voluntary arrangement within Part I of the Insolvency Act 1986 or of any other composition scheme or arrangement with, or assignment for the benefit of, its creditors; or

(ii) a shareholders' meeting is convened for the purpose of considering a resolution that it be wound up or a resolution for its winding-up is passed (other than as part of, and exclusively for the purpose of, a bona fide reconstruction or amalgamation); or

(iii) a petition is presented for its winding up (which is not dismissed within fourteen (14) Working Days of its service) or an application is made for the appointment of a provisional liquidator or a creditors' meeting is convened pursuant to section 98 of the Insolvency Act 1986; or

(iv) a receiver, administrative receiver or similar officer is appointed over the whole or any part of its business or assets; or

(v) an application order is made either for the appointment of an administrator or for an administration order, an administrator is appointed, or notice of intention to appoint an administrator is given; or

(vi) it is or becomes insolvent within the meaning of section 123 of the Insolvency Act 1986; or

(vii) being a "**small company**" within the meaning of section 382(3) of the Companies Act 2006, a moratorium comes into force pursuant to Schedule A1 of the Insolvency Act 1986; or

(b) where the person is an individual or partnership, any event analogous to those listed in limbs (a) (i) to (vii) (inclusive) occurs in relation to that individual or partnership; or

(c) any event analogous to those listed in limbs (a) (i) to (vii) (inclusive) occurs under the law of any other jurisdiction;

"**Intellectual Property Rights**" or "**IPR**" means:

(a) copyright, rights related to or affording protection similar to copyright, rights in databases, patents and rights in inventions, semi-conductor topography rights, trade marks, rights in internet domain names and website addresses and other rights in trade or business names, goodwill, designs, Know-How, trade secrets and other rights in Confidential Information;

(b) applications for registration, and the right to apply for registration, for any of the rights listed at (a) that are capable of being registered in any country or jurisdiction; and

(c) all other rights having equivalent or similar effect in any country or jurisdiction;

"**IPR Claim**" means any claim of infringement or alleged infringement (including the defence of such infringement or alleged infringement) of any IPR used to provide the Services and/or supply the Products or otherwise provided and/or licensed by the Supplier (or to which the Supplier has provided access) to the Authority in the fulfilment of its obligations under the TQ Agreement or this Assignment and Licence;

"**Key Materials**" means materials the IPR in which the Authority reasonably requires ownership of for the Portability Purposes. Examples of where the Authority may reasonably require ownership include because the Authority or a Future Supplier (or, where relevant, a potential Future Supplier) may need to copy or otherwise reproduce such materials (in whole or in part), to supply or communicate the same, or to be able to control the use (in whole or in part) of such materials by third parties, or to authorise others to do so.

Key Materials shall include:

(a) specifications of content for each TQ including core and all specialist components;

(b) assessment guidelines (for Providers);

(c) quality assurance requirements (for Providers);

(d) specimen assessment materials;

(e) standards exemplification materials;

(f) supplementary specimen assessment materials

(g) employer set project guide exemplar responses

(h) employer set project grade exemplar responses

(i) updates or redevelopments of specifications of content;

(j) updates and redevelopments of any Key Materials; and

(k) any materials equivalent to the above to which a Skilled Future Supplier would reasonably require access for the Portability Purposes.

Key Materials shall not include:

(1) Support Materials, insofar as they are not part of any of the expressly included items listed above;

(2) question banks insofar as they are not part of any of the included items listed above and are not developed for the TQ; and

(3) any systems and platforms used to support the delivery of the TQ, provided that the relevant TQ content or data held in or processed by such systems and/or platforms can be extracted without requiring further processing post-extraction (and the Supplier can demonstrate that they can be so extracted) to enable use of the relevant content and/or data by a Skilled Future Supplier in conjunction with a non-proprietary or generally commercially available system or platform;

"**Know-How**" means all ideas, concepts, schemes, information, knowledge, techniques, methodology, and anything else in the nature of know-how relating to the Services;

"**Law**" means any law, subordinate legislation within the meaning of Section 21(1) of the Interpretation Act 1978, bye-law, enforceable right within the meaning of Section 2 of the European Communities Act 1972, regulation, order, regulatory policy, mandatory guidance or code of practice, judgment of a relevant court of law, or directives or requirements with which the Supplier is bound to comply;

"**Losses**" means all losses, liabilities, damages, costs, expenses (including legal fees), disbursements, costs of investigation, litigation, settlement, judgment, interest and penalties whether arising in contract, tort (including negligence), breach of statutory duty, misrepresentation or otherwise and "**Loss**" shall be interpreted accordingly;

"**New IPR**" means :

(a) IPR in items created by the Supplier (or by a third party on behalf of the Supplier) specifically for the purposes of the TQ Agreement and updates and amendments of these items including (but not limited to) database schema; and/or

(b) IPR in or arising as a result of the performance of the Supplier's obligations under the TQ Agreement and all updates and amendments to the same,

but shall not include any IPR owned by the Supplier prior to the Effective Date;

"**Operate**" in relation to a qualification means to provide the Services or a material part of the Services, or services replacing the Services or a material part of the Services, or of an equivalent character to the Services or a material part of the Services in

relation to any other qualification (whether a T Level technical education qualification or not); and "**Operation**" and other cognate terms shall have a corresponding meaning;

"**Party**" means the Authority or the Supplier and "**Parties**" means both of them where the context permits;

"**Product**" has the meaning given in the TQ Agreement;

"**Provider**" means an organisation that has a grant agreement and/or a contract in place with the Department to provide qualifications to Students;

"**Replacement Services**" means any services which are substantially similar to any of the Services (including the supply of any Products) and which the Authority receives in substitution for any of the Services, whether those services are provided by the Authority internally and/or by any third party;

"**Replacement Supplier**" has the meaning given in the TQ Agreement;

"**Required Insurances**" has the meaning given in the TQ Agreement;

"**Services**" means the services as described in Schedule 2 to the TQ Agreement (*Service Requirements*) including any Additional Services as defined in the TQ Agreement;

"**Termination Notice**" means a written notice of termination given by one Party to the other, notifying the Party receiving the notice of the intention of the Party giving the notice to terminate this Assignment and Licence on a specified date and setting out the grounds for termination;

"**Third Party IPR**" means Intellectual Property Rights owned by a third party which is or will be used by the Supplier for the purpose of providing the Services and/or supplying the Products;

"**TQ Agreement**" has the meaning given in recital A (above);

"**Transparent**" means that students and employers will regard the TQ delivered by a Future Supplier as materially the same as the TQ delivered and operated by the (existing) Supplier;

"**Working Day**" means any day other than a Saturday or Sunday or public holiday in England and Wales.

2 Assignment

2.1 Pursuant to and for the consideration set out in the TQ Agreement, the Supplier assigns to the Authority, absolutely with full title guarantee all its right, title and interest in and to all of the Intellectual Property Rights in the Key Materials (which, for the avoidance of doubt, includes the Guide Standard Exemplification Materials) including the right to bring, make, oppose, defend, appeal proceedings, claims or actions and obtain relief (and to retain any damages recovered) in respect of any infringement, or any other cause of action arising from ownership, of any of the Assigned Rights on or after the date of this Assignment and Licence. Such assignment shall take place on the earlier of:

2.1.1 the creation of any relevant materials known to be Key Materials;

2.1.2 the identification by the Supplier of the use of the relevant materials as part of the TQ; and

2.1.3 delivery of the relevant Key Materials to the Authority, or Operation of the TQ by the Supplier.

2.2 With the exception of Guide Standard Exemplification Materials, all Key Materials are relevant course documents for the purposes of section A2D3(4) of the Apprenticeships, Skills, Children and Learning Act 2009, and on approval of the TQ at the Final Approval Milestone and on any subsequent Approval, to the extent that any copyright or any rights in copyright forming part of the Assigned Rights have not then been assigned to and vested absolutely in the Authority, they shall be transferred to the Authority by operation of statute in accordance with section A2IA of the Apprenticeships, Skills, Children and Learning Act 2009. Intellectual Property Rights in the Guide Standard Exemplification Materials is assigned to the Authority by virtue of 2.1 above.

3 Licences to the Authority

3.1 The Supplier hereby grants to the Authority (and the Authority shall have, in addition to any retained rights under clause 13.8 of the TQ Agreement) a non-exclusive, perpetual, royalty-free, irrevocable, transferable worldwide licence to use, exploit and sub-license the IPR in the Ancillary Materials and the Supplier's Background IPR and, in respect of any IPR in Key Materials, in each case to the extent that the same are not at the relevant time vested absolutely in the Authority, as necessary to enable the Authority (and its sub-licensees) to:

3.1.1 use the Key Materials and Ancillary Materials in its administration, approval and oversight of the TQ and other T Level technical education qualifications and to make the same available to others (such as Ofqual) to do the same; and

3.1.2 to use the Key Materials and the Ancillary Materials, and for any Future Supplier or potential Future Supplier to use the Key Materials and the Ancillary Materials:

(iii) for competing or tendering for the delivery and Operation of the TQ and/or any Replacement TQ, during any Transition Period and following expiry or termination of the TQ Agreement; and

(iv) to deliver and Operate the TQ and any Replacement TQ, during any Transition Period and following expiry or termination of the TQ Agreement; and

3.1.3 otherwise to receive and use the Services and the Deliverables and allow any Future Supplier to use the Deliverables; and

3.1.4 to sub-license others to exercise the rights set out in this clause 3.1.

3.2 The Authority agrees that it shall use any Ancillary Materials which fall solely within element (m) of the definition of Ancillary Materials (being "*lists, with contact details, of people contracted by the Supplier to perform or oversee activities which are necessary for the conduct and quality assurance of assessments for the TQ*") only for the purposes of planning for or executing an Emergency Exit.

4 Licence to the Supplier

4.1 The Authority hereby grants to the Supplier, in respect of the Assigned Rights, a worldwide, royalty free, perpetual and irrevocable non-exclusive licence, with the right to sublicense, to use and exploit the IPR in the Key Materials during and after the Term, but not, save as provided in the TQ Agreement, to use the same as part of a T Level, such licence being subject to clauses 13.13 and 13.14 of the TQ Agreement (which for these purposes shall survive any termination or expiry of the TQ Agreement).

5 Warranties and representations

5.1 The Supplier warrants and represents (on the Effective Date and on any relevant assignment or grant of licence taking effect) that:

5.1.1 it is or will be the sole legal and beneficial owner of, and that it owns all the rights and interests in the Assigned Rights no later than the time for assignment specified in clause 2.1 or when they are assigned in accordance with clause 13.2.1 of the TQ Agreement, save for Assigned Rights other than New IPR, in respect of which it has previously notified the Authority and the Authority has agreed in writing that this warranty shall not apply;

5.1.2 where it is not the sole legal and beneficial owner of the Assigned Rights, including the Assigned Rights which are to be used or embodied in any Key Materials, it has established that all owners of such rights consent to their assignment and transfer absolutely to the Authority;

5.1.3 it has all the necessary right and title to grant all the licences granted to the Authority under this Assignment and Licence and the TQ Agreement;

5.1.4 it has not licensed or assigned and of the Assigned Rights other than pursuant to this Assignment and Licence or the TQ Agreement;

5.1.5 the Assigned Rights are free from any security interest, option, mortgage, change or lien;

5.1.6 it is unaware of any infringement or likely infringement of any of the Assigned Rights;

5.1.7 as far as it is aware, all the Assigned Rights are valid and subsisting and there are and have been no claims, challenges, disputes or proceedings, pending or threatened, in relation to the ownership, validity or use of any of the Assigned Rights;

5.1.8 the use of the Key Materials and Ancillary Materials, and exploitation of the Assigned Rights by the Supplier in the provision of the Services and Deliverables or by the Authority in receiving and using the Services and Deliverables or procuring any Replacement Services or by aby Future Supplier in Operating any Replacement Services, will not infringe the rights of any third party; and

5.1.9 the Key Materials are its original work and have not been copied wholly or substantially from any other source.

6 Indemnity

6.1 Subject to clause 19, if there is an IPR Claim, the Supplier indemnifies the Authority against all losses, damages, costs or expenses (including professional fees and fines) incurred as a result.

6.2 If an IPR Claim is made or anticipated, the Supplier must at its own expense and the Authority's sole option, either:

6.2.1 obtain for the Authority the rights in clause 2.1 and 3.1 without infringing any Third Party IPR; or

6.2.2 replace or modify the relevant item with substitutes that do not infringe IPR without adversely affecting the functionality or performance of the Deliverables.

7 Moral rights

7.1 The Supplier shall procure written absolute waivers from all authors of the Key Materials and Ancillary Materials in relation to all their moral rights arising under the Copyright, Designs and Patents Act 1988 in relation to the Key Materials and Ancillary Materials and, as far as is legally possible, any broadly equivalent rights such authors may have in any territory of the world.

8 Ending or extending the Assignment and Licence

8.1 This Assignment and Licence ends if terminated by the Authority for any reason set out in this Assignment and Licence.

8.2 If any of the following events happen, the Authority has the right to immediately Terminate this Assignment and Licence or any of the licences granted under this Assignment and Licence by issuing a Termination Notice to the Supplier (in the latter case specifying the relevant licences):

8.2.1 a Default incapable of remedy;

8.2.2 a Default capable of remedy that us not corrected within 30 days; and

8.2.3 anything occurs which entitles the Authority to terminate the TQ Agreement.

9 Claims against third parties

9.1 The Supplier may take any action it considers appropriate or necessary, subject to the Authority's prior written consent, not to be unreasonably withheld or delayed, if there is a breach, other than in connection with the TQ, by a third party of the Authority's rights in any IPR licensed to the Supplier under clause 4, and the Authority agrees to provide all such assistance as the Supplier may reasonably require (subject to meeting the Authority's reasonably agreed costs and expenses and the Supplier hereby indemnifying the Authority in respect of any loss, damage or liability the Authority incurs by reason of any such action).

10 Further assurance

10.1 At the Authority's expense the Supplier shall, and shall use all reasonable endeavours to procure that any necessary third party shall, promptly execute and deliver such documents and perform such acts as may reasonably be required for the purpose of giving full effect to this Assignment and Licence and the TQ Agreement, including:

10.1.1 registration of the Authority as applicant or (as applicable) proprietor of the Assigned Rights; and

10.1.2 assisting the Authority in obtaining, defending and enforcing the Assigned Rights, and assisting with any other proceedings which may be brought by or against the Authority against or by any third party relating to the Assigned Rights.

10.2 The Supplier appoints the Authority to be its attorney in its name and on its behalf to execute documents, use the Supplier's name and do all things which are necessary or desirable for the Authority to obtain for itself or its nominee the full benefit of this Assignment and Licence.

10.3 This power of attorney is irrevocable and is given by way of security to secure the performance of the Supplier's obligations under this Assignment and Licence and the proprietary interest of the Authority in the Assigned Rights and so long as such obligations of the Supplier remain undischarged, or the Authority has such interest, the power may not be revoked by the Supplier, save with the consent of the Authority.

10.4 Without prejudice to clause 10.2, the Authority may, in any way it thinks fit and in the name and on behalf of the Supplier:

10.4.1 take any action that this Assignment and Licence requires the Supplier to take;

10.4.2 exercise any rights which this Assignment and Licence gives to the Supplier; and

10.4.3 appoint one or more persons to act as substitute attorney(s) for the Supplier and to exercise such of the powers conferred by this power of attorney as the Authority thinks fit and revoke such appointment.

10.5 The Supplier undertakes to ratify and confirm everything that the Authority and any substitute attorney does or arranges or purports to do or arrange in good faith in exercise of any power granted under this clause 10.

11 How much each Party can be held responsible for

11.1 Each Party's total aggregate liability under this Assignment and Licence (whether in tort, contract or otherwise) for each claim or series of connected claims is no more than £1 million.

11.2 No party is liable to the other for:

11.2.1 any indirect Losses; or

11.2.2 loss if profits, turnover, savings, business opportunities or damage to goodwill (in each case whether direct or indirect)

11.3 The limitation of liability set out in clause 11.1 does not apply to either Party in relation to the following:

11.3.1 its liability for death or personal injury caused by its negligence, or that of its employees, against or subcontractors;

11.3.2 bribery or fraud or fraudulent misrepresentation by it or its employees; or

11.3.3 any liaility that cannot be excluded or permitted by Law.

11.4 Each Party must use all reasonable endeavours to mitigate any Losses which it suffers under or in connection with this Assignment and Licence, including where any such Losses are covered by an indemnity.

11.5 When calculating the Supplier's liability under clause 11.1, Losses covered by Required Insurances will not be taken into consideration.

12 Invalid parts of this Assignment and Licence

12.1 If any part of this Assignment and Licence is prohibited by Law or judged by a court to be unlawful, void or unenforceable, it must be removed from this Assignment and Licence as much as required and rendered ineffective as far as possible without affecting the rest of the Assignment and Licence, or whether it is valid or enforceable.

13 No other terms apply

13.1 Except as otherwise expressly provided in this Assignment and Licence or in the TQ Agreement, the provisions incorporated into this Assignment and Licence are the entire agreement between the Parties. The Assignment and Licence replaces all previous statements and agreements whether written or oral. No other provisions apply.

13.2 Variation of this Assignment and Licence is only effective if agreed in writing and signed by both Parties.

14 Other people's rights in this Assignment and Licence

14.1 No third parties may use the Contracts (Rights of Third Parties) Act ("**CRTPA**") to enforce any term of this Assignment and Licence unless stated (referring to CRTPA) in this Assignment and Licence. This does not affect third party rights and remedies that exist independently from CRTPA.

15 Relationships created by this Assignment and Licence

15.1 This Assignment and Licence does not create a partnership, joint venture or employment relationship. The Supplier must represent themselves accordingly and ensure others do so.

16 Giving up contract rights

16.1 A partial or full waiver or relaxation of the terms of this Assignment and Licence is only valid if it is stated to be a waiver in writing to the other Party.

17 Transferring responsibilities

17.1 The Supplier must not assign this Assignment and Licence without Approval.

17.2 The Authority can assign, novate or transfer this Assignment and Licence or any part of it to any Crown Body, public or private sector body which performs the functions of the Authority.

17.3 The Supplier must enter into a novation agreement in the form that the Authority specifies in order to use its rights under clause 17.2.

17.4 The Supplier can terminate this Assignment and Licence if it is novated under clause 17.2 to a private sector body that is experiencing an Insolvency Event.

18 How to communicate about this Assignment and Licence

18.1 All notices under this Assignment and Licence must be in writing and are considered effective on the Working Day of delivery as long as delivered before 5:00 pm on a Working Day. Otherwise the notice is effective on the next Working Day. An email is effective when sent unless an error message is received.

18.2 [redacted]

18.3 This clause does not apply to the service of legal proceedings or any documents in any legal action, arbitration or dispute resolution.

19 Dealing with claims

19.1 If a Beneficiary is notified or otherwise becomes aware of a Claim then it must notify the Indemnifier as soon as reasonably practical and no later than 10 Working Days after such notification or date of first awareness.

19.2 At the Indemnifier's cost the Beneficiary must both:

19.2.1 allow the Indemnifier to conduct all negotiations and proceedings to do with a Claim; and

19.2.2 give the Indemnifier reasonable assistance with the Claim if requested.

19.3 The Beneficiary must not make admissions about the Claim without the prior written consent of the Indemnifier which cannot be unreasonably withheld or delayed.

19.4 The Indemnifier must consider and defend the Claim diligently using competent legal advisors and in a way that does not damage the Beneficiary's reputation.

19.5 The Indemnifier must not settle or compromise any Claim without the Beneficiary's prior written consent which it must not unreasonably withhold or delay.

19.6 Each Beneficiary must take all reasonable steps to minimise and mitigate any losses that it suffers because of the Claim.

19.7 If the Indemnifier pays the Beneficiary money under an indemnity and the Beneficiary later recovers money which is directly related to the Claim, the Beneficiary must immediately repay the Indemnifier the lesser of either:

19.7.1 the sum recovered minus any legitimate amount spent by the Beneficiary when recovering this money; or

19.7.2 the amount the Indemnifier paid the Beneficiary for the Claim.

20 Resolving disputes

20.1 If there is a Dispute, the senior representatives of the Parties who have authority to settle the Dispute will, within 28 days of a written request from the other Party, meet in good faith to resolve the Dispute.

20.2 If the Dispute is not resolved at that meeting, the Parties can attempt to settle it by mediation using the Centre for Effective Dispute Resolution ("**CEDR**") Model Mediation Procedure current at the time of the Dispute. If the Parties cannot agree on a mediator, the mediator will be nominated by CEDR. If either Party does not wish to use, or continue to use mediation, or mediation does not resolve the Dispute, the Dispute must be resolved using clauses 20.3 to 20.5.

20.3 Unless the Authority refers the Dispute to arbitration using clause 20.4, the Parties irrevocably agree that the courts of England and Wales have the exclusive jurisdiction to:

20.3.1 determine the Dispute;

20.3.2 grant interim remedies, or any other provisional or protective relief.

20.4 The Supplier agrees that the Authority has the exclusive right to refer any Dispute to be finally resolved by arbitration under the London Court of International Arbitration Rules current at the time of the Dispute. There will be only one arbitrator. The seat or legal place of the arbitration will be London and the proceedings will be in English.

20.5 The Authority has the right to refer a Dispute to arbitration even if the Supplier has started or has attempted to start court proceedings under clause 20.4, unless the Authority has agreed to the court proceedings or participated in them. Even if court proceedings have started, the Parties must do everything necessary to ensure that the court proceedings are stayed in favour of any arbitration proceedings if they are started under clause 20.4.

20.6 The Supplier cannot suspend the performance of this Assignment and Licence during any Dispute.

21 Which law applies

21.1 This Assignment and Licence and any issues arising out of, or connected to it, are governed by English law.

ANNEX

IPR Assurance Certificate

This certificate is given pursuant to clause 13.9 of the agreement ("**Contract**") between the Department for Education ("**Authority**") and the supplier named below ("**Supplier**"), and the Intellectual Property Assignment and Licence between the Authority and the Supplier (which also forms Schedule 14 of the Contract) ("**Assignment and Licence**").[5]

Guidance:

When to complete this certificate: This certificate should be completed in respect of each Deliverable (as defined in the Contract) which is made available to the Authority under the Contract, and a completed certificate should be supplied to the Authority with that Deliverable. This includes updates to existing Deliverables.

Purpose of this certificate: This certificate is intended to confirm that the specific Deliverable fully complies with the intellectual property provisions of the Contract. A copy of the certificate will be retained by the Authority as evidence of the intellectual property position.

Supplier Declaration:

We (being the Supplier named below) confirm that the Deliverable(s) supplied together with (or shortly before or after) this certificate, all elements of which are listed in either Table 1 or Table 2 below[6], comply with the intellectual property provisions in the Contract, in particular the applicable warranties set out in clause 5 of the Assignment and Licence.

We confirm that the Deliverable(s) either:
(i) contain no third party intellectual property rights, or
(ii) contain third party intellectual property rights and we have obtained the consent of the applicable third party:

- in the case of Key Materials, to their assignment and transfer to the Authority; and/or
- in the case of Ancillary Materials, to their licence to the Authority,

in each case on the terms and conditions of the Contract and Assignment and Licence.

We confirm that this certificate overrides any statement or copyright notice forming part of the Deliverable(s) which is in any way inconsistent with this certificate. We agree that this certificate does not detract in any way from the rights granted to the Authority in the Contract.

Key Materials

We confirm that the Deliverable(s) set out in Table 1 below, or the elements of the Deliverable(s) set out in Table 1 below, are Key Materials, as defined in the Contract:

[5] The parties have agreed to replace the certificate in the form set out in the Annex to Schedule 14 of the Contract with this completed version, which lists Deliverables that are being made available to the Authority. For the avoidance of doubt, an additional completed version of this certificate may be produced for a Deliverable in the event that the Deliverable is updated and made available to the Authority. No Deliverable(s) listed on this and any other certificate shall be removed or replaced unless otherwise specified by the Authority.

[6] If, by exception, the Supplier asserts that the Deliverable includes elements which are neither Key Materials nor Ancillary Materials, this should be notified in writing to the Authority prior to the relevant Deliverable being made available to the Authority.

Table 1

TQ Deliverable	Component	Filename/Title	Version	Date submitted	Key Material Applicable Rights
Set out the Product / Deliverable name (e.g. “TQ Specification”, “Specimen Assessment Materials”, “Guide Standard Exemplification Materials”	E.g. “Core”, Occupational Specialism “title/name”,	Filename as saved / visible to end users who will download the file	Version number as submitted and recorded on the Deliverable	Date the final version was submitted to the Authority	Set out elements which are Key Materials, or confirm “entire Deliverable”

All intellectual property rights in the Deliverable(s), or elements of the Deliverable(s) listed above in Table 1 as Key Materials, have vested or hereby vest in the Authority pursuant to the Assignment and Licence.

Ancillary Materials

We confirm that the Deliverable(s) set out in Table 2 below, or the elements of the Deliverable set out in Table 2 below are Ancillary Materials, as defined in the Contract:

Table 2

TQ Deliverable	Component	Filename/Title	Version	Date submitted	Ancillary Material Applicable Rights
Set out the Product / Deliverable name (e.g. “Assessment Strategy”	Record “N/A” if not applicable	Filename as saved / visible to end users who will download the file	Version number as submitted and recorded on the Deliverable	Date the final version was submitted to the Authority	Set out elements which are Ancillary Materials, or confirm “entire Deliverable”

All intellectual property rights in the Deliverable(s), or elements of the Deliverable(s) listed above in Table 2 as Ancillary Materials, are licensed to the Authority on the terms and conditions of and pursuant to the Assignment and Licence.

Signed by

PEARSON EDUCATION LIMITED

[redacted]

Signature: [redacted]

Signed by

DEPARTMENT FOR EDUCATION

[redacted]

Signature: …[redacted]