T-LEVELS | IfATE Institute for Apprenticeships and Technical Education

T Level Technical Qualification in Design and Development for Engineering and Manufacturing

8730-14 Core Report (Summer 2024)

Version 1.0

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Foreword

Summer 2024 Results

The Technical Qualification is made up of two components (the Core and the Occupational Specialism), both of which need to be successfully achieved to attain the T Level Technical Qualification in Engineering and Manufacturing. This takes into account the best result for a specific component from the summer and autumn series. This document covers the Core component only.

We discussed the approach to standard setting/maintaining with Ofqual and the other awarding organisations before awarding this year. We have agreed to take account of the newness of qualifications in how we award this year to recognise that students and teachers are less familiar with the assessments (grading-arrangements-for-vtqsand-technical-qualifications-within-t-levels-in-the-academic-year-2023-to-2024), whilst also recognising the standards required for these qualifications.

Introduction

This document has been prepared to be used as a feedback tool for Providers in order to support and enhance teaching and preparation for assessment. It is advised that this document is referred to when planning delivery and when preparing candidates for the T Level Technical Qualification (TQ) in Engineering and Manufacturing **Core** assessments.

This report provides general commentary on candidate performance in both the examination papers and Employer-Set Project (ESP). It highlights common themes in relation to the technical aspects explored within the assessment, giving areas of strengths and weakness demonstrated by the cohort of candidates who sat assessments in the summer 2024 assessment series.

The grade boundaries (and notional boundaries where appropriate) that were used to determine candidates' final summer 2024 results are also provided.

More information regarding T Levels TQ grading, awarding, UMS and rules for retakes can be found in the T Levels Technical Qualifications Grading Guide available on the City & Guilds T Levels Resources and Support Hub.

8730-031 Paper 1

This exam paper covers the following elements of the Engineering & Manufacturing core content:

- Essential mathematics for engineering and manufacturing
- Essential science for engineering and manufacturing
- Materials and their properties
- Mechanical principles
- Electrical and electronic principles
- Mechatronics

This exam paper allowed for candidates to demonstrate a broad range of subject knowledge within the Engineering and Manufacturing core element.

The exam has been split into **two** sections. Below details the types of questions and marks available for each section.

Section A is made up of **67** marks and includes **18** short answer questions.
Section B is made up of **33** marks and includes **3** extended response questions.

The exam is designed to provide sufficient sampling across the content and consists of a mixture of short answer questions (SAQs), some of which are structured, and extended response questions (ERQs). The exam assesses across assessment objectives (AOs) to allow for the appropriate assessment and differentiation of candidates to support the reliable setting of boundaries. The assessment objectives represent the following:

- **AO1 a** Demonstrate knowledge
- **AO1 b** Demonstrate understanding
- **AO2** Apply knowledge and understanding to different situations and context
- **AO3** Analyse and evaluate information and issues

This was the third series of this examination being sat. The paper is common to the three pathways of Engineering & Manufacturing; Design & Development (D&D), Maintenance, Installation and Repair (MIR) and Engineering, Manufacturing, Processing and Control (EMPC).

The examination paper is designed so that it gradually increases in challenge. Questions were ramped in terms of difficulty throughout section A starting with AO1a through to AO2, this allowed for the level of demand to be increased steadily throughout the paper. The extended response questions (ERQ) in section B were scenario based and ramped with AO2 and AO3 questions.

Areas of strength include:

- solving calculations (Q2), showing basic understanding of fractions, indices and ratios. This was an AO1b understanding question, and the majority of candidates performed well with this question.
- demonstrating good basic recall of the three particles of an atom (Q3a). The majority of candidates achieved full marks for this question.

- recalling other methods of corrosion prevention (Q5b). This question saw a spread of marks, with the majority of candidates scoring 1 or 2 marks out of 3 marks.
- calculating the percentage increase of materials and work out the total length of the material after a tensile test was completed (Q8). Candidates performed well with both parts of this question, using the context and data provided to correctly answer the question.
- calculating areas and volumes of simple 2D shapes (Q9). The majority of candidates achieved full marks for part a) and part b) of this question.
- understanding of the limitations and advantages of programmable logic controllers (Q10). Candidates were able to access the full range of marks and demonstrated a better understanding of the advantages of using PLC's compared to the limitation of using them.
- calculate the density of oil based upon the scenario provided (Q14). A spread of marks was seen, with a third of candidates achieving full marks.
- demonstrating the candidates' ability to calculate total momentum using the information provided within the context of the question (Q15a). Here, almost half of the cohort achieved full marks for this question.
- calculating cartesian coordinates and then plotting those coordinates onto a graph. Candidates performed well on Q16 (a & b). This question allowed for follow through error for part b), which enabled half the cohort to achieve full marks for this part of question, demonstrating candidates' ability to plot coordinates correctly.

Overall, an improvement in candidates' performance was seen in candidates' responses to Section A when compared to previous series, although it is noted that candidates tended to perform better on questions which required a written response rather than a solution that required mathematical methods to be used.

Areas of weakness include:

- recalling of Newton's laws of motion (Q1 a & b). Definition based questions have previously performed very poorly within this exam paper. However, performance on this question, showed an improvement compared to the previous series.
- demonstrating knowledge and understanding of thermochromic materials (Q4). Unfortunately, many candidates demonstrated a lack of understanding for the smart properties of thermochromic materials and instead referred to thermal conductivity products.
- demonstrating understanding of how galvanic protection prevents corrosion (Q5a). However, many candidates answered about a 'physical layer', which is not the method of protection when galvanic protection is in place (electrochemical circuit). Some candidates mentioned sacrificial anode but linked to an incorrect process.
- understanding of circular measure to find the area of the sector. Many candidates used an incorrect method to answer this question (Q6). Some candidates tried to convert the angle into degrees and then apply the method. High performing candidates were able to use the correct method to answer this question and achieved full marks. Disclaimer: The image within this question did not represent an obtuse angle, therefore the image has been amended within the question paper published on the website to accurately reflect the angle. This question was determined to be an assessment material error, which was reported to Ofqual and was taken into account when setting grade boundaries to ensure all candidates were not at a disadvantage.
- calculating the total capacitance of a diagram, when the total capacitance for the series was provided (Q7). Nearly 40% of the cohort achieved full marks for this

question, and the Pearson's R correlation suggests that this question was a good discriminator, with the high performing candidates accessing full marks.

- demonstrating application of Charles law and required candidates to calculate the final temperature of the gas from the scenario provided (Q11a). Many candidates used the correct formula, however errors in their calculations were made by not converting Celsius to Kelvin which is a requirement of Charles' law.
- drawing a phasor diagram using the information provided in the question (Q12). Many candidates demonstrated a lack of understanding on the concept of a phasor, this was apparent by candidates drawing a graph with curves and not a phasor diagram. Some candidates were able to access partial marks, by plotting voltage (V) leading current (I) with the same amplitude.
- demonstrating application of knowledge and understanding by using the information provided to calculate specific heat capacities (Q13). A full spread of marks was seen, however many candidates struggled with the concept of specific heat capacities with the majority of candidates scored 0 marks.
- calculating the velocity from the scenario provided (Q15b). Few candidates attempted the question correctly. Some did not combine the masses together. Many candidates used the Kinetic Energy formula incorrectly to work out the velocity.

With some written responses candidate's responses often lacked the detail to demonstrate they had the knowledge required to award marks. Responses were often generic and lacked the use of technical terminology.

Responses to extended response questions (ERQs)

The majority of candidates attempted the ERQ's within Section B, with the high achieving candidates responding with more depth and detail in their responses, in comparison to the low achieving candidates. It's important to emphasise the need to relate back to the context of the question to exemplify answers and demonstrate application of knowledge and understanding.

Q19 required candidates to demonstrate their knowledge and understanding of heat treatments. A full spread of marks was seen, with the majority of candidates responses in mark band 1 (2 or 3 marks out of 9). Overall, the technical content of answers showed limited discussion with technical inaccuracies. Descriptive responses were often provided which demonstrated knowledge and understanding of the process but not its effects. This limited the candidate's ability to access higher mark bands. Some candidate's responses were focused on surface finishing and shaping the material rather than the heat treatment. In some cases, some candidates confused the effects of tempering with annealing and vice versa demonstrating a lack of understanding of these processes. A few candidates proposed correct combination of quench hardening and tempering, however, lacked detailed justifications.

Q20 assessed candidates' knowledge and understanding of protection schemes to protect the transmission lines. Candidates were able to access all mark bands, with the majority of the cohort achieving mark band 1. Some candidate responses discussed PPE / isolate it from people / Health & Safety. Very few candidates mentioned lightning arrestors. A lack of knowledge of high voltage protection methods was shown by the majority of candidates.

Q21 assessed candidate's knowledge and understanding of material choice within a context of a mountain bike frame. The majority of responses were in mark band 1 (1-3 marks) and mark band 2 (4-6 marks). Candidates mentioned a variety of materials, including some that were not relevant and/or poor decision to use. Some candidates only discussed properties from the question stem; 'lightweight and strong and rough terrain'. Minimal number of

candidates considered manufacturing. Candidates that scored within the lower bands, lacked justification for their selection of material. Candidates in the mark band 3 upwards, discussed carbon fibre with other metals such as aluminium or titanium or alloys such as carbon steel or stainless steel and provided appropriate justifications for this.

8730-032 Paper 2

This exam paper covers the following elements of the Engineering and Manufacturing core content:

- Working in 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

This exam paper allowed for candidates to demonstrate a broad range of subject knowledge within the Engineering and Manufacturing core element.

The exam has been split into **two** sections. Below details the types of questions and marks available for each section.

Section A is made up of **67** marks and includes **15** short answer and medium answer questions.
Section B is made up of **33** marks and includes **3** extended response questions.

The exam is designed to provide sufficient sampling across the content and consists of a mixture of short answer questions (SAQs), some of which are structured, and extended response questions (ERQs). The exam assesses across assessment objectives (AOs) to allow for the appropriate assessment and differentiation of candidates to support the reliable setting of boundaries. The assessment objectives represent the following:

- **AO1 a** Demonstrate knowledge
- **AO1 b** Demonstrate understanding
- **AO2** Apply knowledge and understanding to different situations and context
- **AO3** Analyse and evaluate information and issues

This was the third series of this examination being sat. The paper is common to the three pathways of Engineering and Manufacturing; Design & Development (D&D), Maintenance, Installation and Repair (MIR) and Engineering, Manufacturing, Processing and Control (EMPC).

Questions were ramped in terms of difficulty throughout section A starting with AO1a through to AO2, this allowed for the level of demand to be increased steadily throughout the paper. The extended response questions ERQ questions in section B were scenario based and ramped with AO2 and AO3 questions.

Areas of strength include:

- recalling the definition of 'inclusive design'. Candidates performed well with this question (Q3), with the majority of candidates gaining full marks for this question.
- demonstrating understanding of tolerances, with a basic calculation question (Q5a). Here, candidates were able to calculate the maximum and minimum values in relation to tolerance, with over 80% of candidates scoring full marks.
- demonstrating some good understanding on the purpose of ISO standards in engineering (Q6), with a spread of marks being achieved by candidates.
- understanding on the importance of good mental health and wellbeing within an engineering workplace (Q8). A full spread of marks was seen with this question, with a high proportion of candidates achieving 2 - 4 marks out of a possible 4 marks.
- demonstrating understanding of workplace design and how this can improve worker comfort (Q9). This question was well answered by the majority of candidates.
- a good understanding to health and safety principles and practices (Q10 a & b). Candidates were able to identify appropriate Personal Protective Equipment (PPE), and provide reasoning for this, as well as relevant explanations of health and safety requirements in relation to the scenario provided in the question.
- explaining the purpose of SOPs in relation to the context of the question (Q12) The majority of candidates were able to gain partial marks with this question achieving 1 or 2 marks out of 3. Some candidates did not expand upon their answers to gain full marks.
- demonstrating an application of knowledge and understanding of indirect costs in relation to the context of the question (Q13b). This question displayed a full spread of marks, with a high proportion of candidates achieving full marks.
- demonstrating knowledge and understanding of continuous improvement practices in relation to the context of the question (Q14). This was a unconstrained 6 mark question, and candidates performed well with this question, and a full spread of marks was seen.

Areas of weakness include:

- recalling services provided by the medical engineering sector (Q2). Candidates struggled with this recall question, with half the cohort scoring 0 marks.
- recalling the four key stage of the asset life cycle (Q4). A full spread of marks was seen, however, the majority of candidates scored 0 – 1 mark. Candidates often discussed the general design process or manufacturing of products rather than the stages of the asset life cycle.
- understanding of drawing types, specifically block diagram and hydraulic schematics (Q5b). Unfortunately, candidates did not perform well, with some candidates confusing a flow diagram with a block diagram.
- explaining the difference between first and third angle orthographic projection drawings (Q5c). This question was poorly answered by most candidates, with the majority of candidates scoring 0 marks. Some candidates attempted to answer this question, but the answers were too vague to award full marks. Some also used the symbols to illustrate the difference.
- understanding the advantages of a business using Pareto analysis as an approach to quality improvement (Q7). A full spread of marks was seen, however half the cohort scored 0 marks. When candidates attempted to answer the question, quite often the answers were lacking in depth of understanding.
- demonstrating application of knowledge and understanding of direct costs in relation to the context of the question (Q13a). Despite candidates performing well on part b) of this question which related to indirect costs, candidates struggled to provide an

example of a direct cost and why it is needed for part a). Where candidates did provide an answer, they were unclear whether it was in relation to an indirect or direct cost.

Within AO2 questions candidates frequently showed evidence of basic knowledge, but often did not expand their answers enough to show the context specific understanding required to access the higher marks.

Response to extended question (ERQs)
The ERQ's in this paper, provided a mixture of responses from candidates, with the last two ERQ's performing better with candidates scoring within mark band 2. Candidates did struggle with the first ERQ (Q16) with the majority of candidates falling within the lower mark bands.

Q16 assessed candidates' knowledge and understanding of circular economy and how this could influence the future development of manufacturing in the UK. Unfortunately, candidates demonstrated a lack of understanding of what circular economy is and struggled to address the question correctly. It is noted that the full spread of marks was accessed by the cohort, and the higher performing candidates, were able to address this question achieving marks within the higher mark bands.

Q17 required candidates to evaluate the benefits and limitations of a company making a change in terms of the manufacturing processes used in relation to the context provided in the question. This question was well answered by the majority of candidates, with a high proportion of candidates achieving marks within mark band 2 (4-6 marks) out of 12. Some candidates provided generalised answers and did not link back to the context.

Q18, candidates had to discuss how the design specification impacts a range of engineering activities (design, manufacture and maintenance) in relation to the context provided in the question. This synoptic extended response question was well answered by the majority of candidates, with a high proportion of candidates accessing marks in the middle mark bands.

8730 Sub-Component: Exam

Best practice and guidance to providers on potential areas for improving performance in assessment

It is recommended that providers utilise and deliver the sample examinations as well as past papers (Summer 2023 & Autumn 2023) as formative assessment to support candidates in preparation for summative assessment.

Providers are advised to ensure that the full range of specification handbook content is covered to the required depth shown in the ‘what learners need to learn’ section of the content, and that sufficient time is given to each of these topic areas.

Candidates would benefit from understanding what different command verbs are asking of them. For example, the type of response required by an ‘Explain’ question requires a higher level of response than a ‘State’ or ‘Describe’ question. Candidates should be reminded of the need to ensure they fully read and understand all questions before responding.

Providers should support candidates on developing their skills in writing responses to questions that ask for basic knowledge recall, demonstration of understanding, as well as those that are set within, and require reference to, appropriate engineering contexts.

Candidates must be reminded of the need to ensure they fully read all questions before responding. In particular, the ERQ scenario-based questions and questions assessing the application of knowledge and understanding (AO2) must be related back to the context of the question.

ERQ performance could be further enhanced by preparing candidates to consider in-depth explanations and analysis (including secondary implications where appropriate) on different scenarios and relating it back to the context. To achieve the higher bands candidates needed to include more detailed conclusions and justifications in their responses.

Some of the papers had very unclear handwriting, making it difficult for the marker to read the response. Providers should encourage candidates to ensure their handwriting is legible. Writing in block capital letters is a possible solution if a candidate’s handwriting is not legible.

Support materials

Sample and Past Papers:
It is recommended that Providers utilise and deliver the **sample examinations** as well as **past papers** as formative assessment to support candidates in preparation for summative assessment.

Sample and past papers: T Level Technical Qualification in Engineering and Manufacturing (Core) qualifications and training courses | City & Guilds (cityandguilds.com)

Exam Guides:
It is also recommended that Providers utilise the **exam guides** which provides general tips for candidates taking these assessments, examples of different types of questions that will appear, example candidate responses with examiner commentary and examiner hints and tips.

Link: Exam Guide

Events and Webinars:
City & Guilds run free webinars and events throughout the year on preparing for and delivering the T Level exams. The below link provides details on upcoming in person events, live webinars, on-demand webinars and preparation for the core exams.

Link: Events and webinars - T Levels | City & Guilds (cityandguilds.com)

Grade boundaries

The table below shows the grade mark ranges for the Exam, along with the notional boundaries for Paper 1 and Paper 2 – **for the summer 2024 series.**

Grade	Mark range	Notional boundaries	
		Paper 1 (8730-031)	Paper 2 (8730-032)
A*	158-200	78-100	79-100
A	138-157	68-77	70-78
B	118-137	58-67	59-69
C	98-117	48-57	49-58
D	78-97	38-47	39-48
E	58-77	29-37	29-38
Unclassified (U)	0-57	0-28	0-28

8730-035 Sub-Component: Employer-Set Project

The Employer-Set Project (ESP) assessment is a project comprised of a number of tasks, based on a scenario comparable to a real-life project in the industry. The assessment is designed to allow candidates to show how they can perform on a project using the core knowledge and skills. This approach to assessment emphasises to candidates the importance and applicability of the full range of their learning to industry practice.
The project is made up of a number of tasks which all relate to the same employer-set project brief and tender specification.

- Research
- Design
- Plan
- Present

The project draws on the content from the core knowledge that sits across all specialisms in Design and Development for Engineering and Manufacturing.

The ESP assesses across assessment objectives that will allow for the appropriate differentiation of candidates to support the reliable setting of boundaries. The assessment objectives represent the following:

- **AO1** Plan approach to meet the brief
- **AO2** Apply knowledge and skills to contexts
- **AO3** Select techniques and resources to meet brief
- **AO4** Use maths, English and digital skills
- **AO5** Release project outcome and evaluate

This was the third series for the Employer-Set Project. The project is based around a brief which provides information on a Design and Development project and specific relevant details and resources. Candidates have to draw on their Core knowledge and skills and independently select the correct processes and approaches to take to provide a solution and the evidence specified in the project brief. All tasks are completed under supervised/controlled conditions.

Employer-Set Project tasks overview

Task	Task Type	Assessment Objectives covered	Max Mark	Task weighting
1	Research	AO1, AO2a, AO3 (Planning, core knowledge, selecting techniques and resource)	9	16.6%
		AO2b (Core Skills)	6	
2	Design	AO1, AO3 (Planned approach, selecting techniques)	6	26.7%
		AO2a (Core knowledge)	6	
		AO2b (Core Skills)	6	
		AO5a, AO5b (Realise outcome, review outcome)	6	
3	Plan	AO1, AO3 (Planned approach, selecting techniques)	6	20%
		AO2a (Core knowledge)	6	
		AO2b (Core Skills)	6	
4	Present	AO1, AO3 (Planned approach, selecting techniques)	6	26.7%
		AO2a (Core knowledge)	6	
		AO2b (Core Skills)	6	
		AO5a, AO5b (Realise outcome, review outcome)	6	
Maths, English and digital skills		AO4a (Maths)	3	10%
		AO4b (English)	3	
		AO4c (Digital Skills)	3	

Task 1 – Research:

Candidates were required to research a floating buoy for harbours with multiple technologies such as tracking and notification if the buoy drifts off. Candidate performance for this task, were mainly placed within band 2 descriptor, with the core skills element scoring the high end of band descriptor 2.

- It was noted that some candidates submitted a single document as evidence for both the research and the report, whereas they should have been two distinct pieces of work.
- Candidates should be covering the whole breadth of the design specification, however a notable number of candidates covered just one part in depth with minimal coverage of the others.
- Most candidates used the internet for their research, this was sometimes information copied and pasted directly from the website, usually accompanied with a website link.
- Some candidates used Chat GPT for their research but did not check the validity of the information provided.
- Many candidates failed to provide references/sources from their research activities, but there was some slight improvement from previous series in this respect.
- Some candidates were unable to provide an appropriate technical design brief so they could not show knowledge and understanding fully.

Actions providers can take to support assessment preparation for future series:

Providers are advised to work with candidates to improve their skills in relation to research and correct referencing as well as checking their findings are correct, especially when using artificial intelligence software. Providers are advised to ensure candidates can develop their writing skills especially on evaluation and justification. It would be beneficial to ensure that candidates provide research notes and written technical brief as two separate pieces of work rather than combining them to demonstrate applications of research.

Task 2 – Design:

Candidates were required to develop at least two designs and prepare drawings (sketches and CAD) for the buoy and undertaking relevant calculations. Most candidates scored within band 2 descriptor for this task, achieving 3 or 4 marks out of 6 marks for each marking grid.

- The design sketches and annotations were often completed to a reasonable standard.
- When using CAD many candidates did not complete the title block to show all relevant information for anyone to make the buoy. The candidates that did well had clear annotation on their sketches and dimensions to explain their design which allowed them the opportunity to justify their design.
- The majority of candidates did not include the calculations that were requested; however, some candidates did include other calculations.
- Many candidates were able to include the best bits of their initial sketch design into their preferred solution, which showed a good awareness of design iteration. However, many candidates struggled to provide a good evaluation or justification for their chosen design which demonstrated a lack of technical knowledge.

Actions providers can take to support assessment preparation for future series:

Providers are advised to focus on developing candidates iterative design improvements and effective selection and evaluation of design choices and the use of technical language to justify their choice. Encourage candidates to show clarity in sketching and drawings and writing that allow the item to be made. They must have a title block fully completed and 2D orthogonal drawings produced with sufficient details on materials, full dimensions and other key aspects that allows someone else to make the item. 3D models are not needed and should only be supplied in addition to the required drawings and sketches.

Providers are advised to ensure that candidates understand the importance of covering all elements of a product design specification in their solutions. Especially carry out the relevant calculation to achieve the higher marking bands.
It is noted, that scanned images were often difficult to read, providers are advised to ensure an appropriate pencil is used for sketches. Request that scanned images are of a high resolution to ensure that the design ideas and annotations can be easily read.

Task 3 – Plan:

Candidates were required to produce a programme of work plan detailing the stages and considerations required to complete the design, development, and manufacture of their final buoy design. Overall, the majority of candidates achieved band 2 descriptor, at the low end of the descriptor (3 out of 6 marks).

- Most candidates completed a Gantt chart for this task, however some candidates dd also complete a PERT diagram with a critical path.
- Many candidates included colour coded milestones. Some candidates produced a written statement, but this did not support or justify their programme of work.
- Additionally, there were candidates who spoke about health & safety and risk assessment in general terms rather than the elements that were relevant to the context of this scenario.

Actions providers can take to support assessment preparation for future series:

Providers are advised to ensure candidates have the opportunity to develop the skills required to plan a project including the production of:

- Gantt charts that can be easily followed if they use MS Project so that the chart does not go over multiple pages that cannot be viewed and followed easily on a screen.
- a clear programme of work with justification.
- a clear justified critical path.
- a risk assessment that shows risks and responses.
- relevant technical knowledge for environmental factors and waste management for this project rather than generic statements.

Task 4 – Present:

Candidates were required to produce and deliver a presentation which addressed the task brief. The presentation was the best responded to and the strongest area for most candidates with very few candidates reading the screen. A full range of marks was observed, with most candidates scoring the high end of band 2 descriptor (4 out of 6 marks).

- Most presentations were more logical and structured than in previous series. However, some candidates had information and details present in this task, which had been omitted from previous tasks.
- A number of presentations included more text than needed on each slide making it hard to read.
- Some candidate's presentation skills were weak with not all information being relayed effectively and the audience outlined in the task not considered.

Actions providers can take to support assessment preparation for future series:

Providers are advised to ensure candidates have the opportunity to develop their presentation skills including the production of presentations and presenting information to an appropriate audience.

It was also noted that the video evidence uploaded by some providers did not play or had poor sound. Providers are advised to check the quality of video evidence prior to submitting it and to ensure that microphones are used.

Maths, English & digital skills:

Evidence across all four tasks is taken into consideration when assessing English, maths and Digital Skills. Generally, the majority of candidates were within band 2 for English and Digital Skills.

- Maths skills was limited in places for this ESP similar to the performance seen in the last series. This was mainly due to the following:
    - Minimal to no calculations were produced in reference to the power produced against power needed to drive the technologies on the buoy, with limited calculations produced for the budget requirements.
    - Adding mathematical information that was not needed and then getting it incorrect.
    - No real scale on sketches/CAD images.

- Most candidates scored in the middle band for English skills. This is due to poor grammar and punctuation; however, this was similar to the last series. The language was mostly used correctly with technical language present in both written and video evidence. Where candidates scored maximum marks for English, it was noted that the candidates articulated information well in both their written report and verbal presentation with clarity and were also error free. Terminology was technical and consistent with the intended audience considered.
- Most candidates scored in the middle band for digital skills. Candidates utilised digital skills, when producing the CAD drawing, planning chart (usually in excel) and the presentation using PowerPoint. It became evident that some candidates struggled with basic digital skills such as formatting text and layout of word processed and spreadsheet evidence.

Best practice and guidance to providers on potential areas for improving performance in assessment

There was an issue with some file conventions for evidence making it difficult for markers to

identify evidence. Providers are advised to ensure that candidate documents are uploaded correctly and contain the relevant content and labelled with the correct filename to ensure consistency and ease of access. For example: *Task_1_Research_[Registration numbers #]_[surname]_[first letter of first name]*

In some instances, providers uploaded evidence for the incorrect candidate. Providers should be aware that this could lead to a delay in results being issued. Providers are asked to check the evidence hasn't corrupted prior to upload and that any videos play and have sufficient sound. This should then be declared on the evidence checklist.

Providers are strongly encouraged to use evidence headers for each task, to allow for ease of identification of candidate evidence and efficiency in marking. All information within the task headers should be completed. Candidate evidence should be included within the header document and not as a separate file.

Providers should complete and submit the 'Evidence checklist' and must detail on this where evidence has not been submitted. This is designed to be a checklist of the minimum evidence that is expected for a candidate. The checklist must align to what has been uploaded to the system.

Providers are reminded that each task is marked in isolation and that each task has been weighted in relation to the assessment objectives covered. This information is detailed in the

specification and sample assessments. All tasks are marked separately, so where evidence that originated in another task within the Employer Set Project is produced by a candidate, no marks will be retrospectively awarded for that evidence in previous tasks, despite the knowledge or skills that it may demonstrate. The only evidence considered for the marking of an individual task is what is listed within the 'what must be produced for marking' section within each marking grid.

Providers are advised to ensure the tutor and candidate both sign and date Declarations of Authenticity once the assessment has been completed. This confirms that the assessment has been conducted in line with the stipulated conditions and guidance. Each candidate only requires one declaration each, declarations are not required for each task. Providers only have to upload the declaration as evidence of compliance to the assessment conditions, there is no need to upload further evidence such as records of the candidates search history. If City and Guilds have concerns relating to the conduct of the assessment and require further evidence, we will contact Providers for this.

Providers are encouraged to develop candidates math skills. Applied mathematics in project related settings will prepare students for the ESP set up. Units in calculations and some dimensional analysis should be a mathematical skills focus.

Support materials

Sample and Past ESP Assessments:
It is recommended that Providers utilise and deliver the **sample ESP** as well as **past ESPs** as formative assessment to support candidates in preparation for summative assessment.

Sample and past ESPs: T Level Technical Qualification in Engineering and Manufacturing (Core) qualifications and training courses | City & Guilds (cityandguilds.com)

Exemplar ESP Assessments:
It is also recommended that Providers utilise the **exemplar ESP Assessments** to help understand the standard that was required in the Summer 2023 assessment series to achieve an A and E grade.

8730-035 ESP A grade exemplar: https://www.cityandguilds.com/-/media/productdocuments/engineering/mechanical/8730/assessment-materials/employer-set-project-exemplars/design-and-development-for-engineering-and-manufacturing/8730-035-esp-a-grade-exemplar-summer-2023-v1-0-pdf.ashx

8730-035 ESP E grade exemplar: https://www.cityandguilds.com/-/media/productdocuments/engineering/mechanical/8730/assessment-materials/employer-set-project-exemplars/design-and-development-for-engineering-and-manufacturing/8730-035-esp-e-grade-exemplar-summer-2023-v1-0-pdf.ashx

TQ Employer-Set Project Assessment Process Guide:
The guide gives support to Providers in preparing for and delivering T Level Employer-Set Projects.

Link: TQ Employer-Set Project Assessment process guide (cityandguilds.com)

Events and Webinars:
City & Guilds run free webinars and events throughout the year on preparing for and delivering the T Level Employer Set Projects. The below link provides details on upcoming in person events, live webinars, on-demand webinars and preparation for the ESP assessment.

Link: Events and webinars - T Levels | City & Guilds (cityandguilds.com)

Grade boundaries

The table below shows the grade mark ranges for the Employer-Set Project – **for the summer 2024 series.**

Grade	Mark range
A*	70-90
A	62-69
B	54-61
C	46-53
D	38-45
E	30-37
Unclassified (U)	0-29

8730-035 Design and Development for Engineering and Manufacturing

The T Levels Technical Qualification (TQ) in Engineering and Manufacturing core is made up of the below sub-components (and weightings).

- Exam (70%)
- Employer-Set Project (30%)

UMS grade boundaries

The table below shows the UMS values available for grades in the sub-components. It also shows the UMS values required to achieve each grade for the overall Core. This table will not vary across the series, the values are fixed for this TQ.

Grade boundary	Exam sub-component	ESP sub-component	Overall Core
A*	252-280	108-120	360-400
A	224-251	96-107	320-359
B	196-223	84-95	280-319
C	168-195	72-83	240-279
D	140-167	60-71	200-239
E	112-139	48-59	160-199
Unclassified (U)	0-111	0-47	0-159

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: **http://www.cityandguilds.com/tlevels**

Web chat available **here**.

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