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 (Autumn 2024)

Version 1.0

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Foreword

Autumn 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, 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 Autumn 2024 assessment series.

The grade boundaries (and notional boundaries where appropriate) that were used to determine candidates' final Autumn 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 is 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 **19** 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 fourth 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, which 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:

- recalling the function of a thermistor (Q2). The majority of candidates demonstrated good recall of knowledge and scored full marks.
- identifying and recalling the function of a micrometer (Q3a). This saw a spread of marks with the majority of candidates scoring 1 or 2 marks out of 3 marks.
- recalling the definition of kinetic energy (Q5a). The majority of candidates demonstrated good recall of knowledge and scored full marks.

- explaining the purpose of microcontrollers and providing examples of where they are used (Q9). This saw a spread of marks across the mark range (up to 4 marks).
- determining the temperature of the drill after it is in use for a certain amount of time (Q17a), as well as calculating the maximum length of time the drill can be used for before it reaches a certain temperature (Q17b). This assessed candidates understanding of determining numbers in a sequence and saw the majority of candidates achieving full marks in this question.
- analysing data and calculating probabilities in an engineering context (Q18). Candidates performed well on part a) and b) of this question, with the majority of candidates achieving full marks, and on part c) almost half of the cohort achieved full marks.
- explaining the advantages of using tensile testing in relation to a scenario provided (Q19). This was an unconstrained question at the end of section A, and demonstrated a spread of marks, with candidates accessing all marks available (maximum of 6 marks).

Overall, candidates tended to perform better on questions requiring a written response rather than solutions requiring mathematical methods.

Areas of weakness include:

- recalling the measurement principles of uncertainty (Q3bii) and resolution (Q3biii). Candidates struggled with this recall of knowledge question, with many candidates providing incorrect descriptions.
- recalling what a diode is used for and providing an application (Q4). Here, candidates struggled to correctly recall the purpose of a diode.
- converting a hexadecimal number to decimal form (Q6). Unfortunately, a frequent point of confusion was interpreting "A" as 10. Few candidates arrived at the correct answer. Common errors included incorrect application of powers of 16.
- explaining the differences between magnetic field strength and magnetic flux density (Q8). This proved to be a challenging question, with only a few candidates earning full marks. Many had difficulty distinguishing between magnetic field strength and magnetic flux density or failed to provide adequate explanations.
- calculating the common velocity utilising the information provided within the scenario (Q10). The question was based on the principle of conservation of momentum. Some candidates understood the concept of the question but struggled with the fact that, in this case, one of the velocities was negative.
- understanding of cartesian coordinates and polar coordinates and the conversion of these (Q11). More than half the cohort achieved no marks with this question (Q11a, 11b). Candidates seemed to perform slightly better when converting polar coordinates to cartesian.
- demonstrating knowledge and understanding of differentiation (Q16) which required candidates to calculate the maximum area of a rectangle. Unfortunately, most candidates struggled to correctly use differentiation to answer the question.

The understanding of mathematics and scientific principles was noticeably poor, and candidates' overall responses were not as expected for Level 3. This was also noticed in the summer series. With some written responses candidate's responses often lacked the detail to demonstrate they had the knowledge required to achieve the available marks. Responses

were often generic and sometimes misunderstood. For example, in Q19, some candidates understood this question as the use of tensile tests for the design/testing of components of final products rather than testing the material prior to manufacturing. Similarly, in Q8, flux density and field strength definitions were interchanged or incorrect.

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. The ERQs saw most of the cohort placed in bands 1 and 2; however, they did show a spread of marks across the bands for all three questions. These questions had a higher discrimination value across the paper. In many responses, the candidates struggled to display their evaluation skills, with limited justifications or rationales for their choices.

It is noted that candidates' performance was weaker in Q20; it was observed that there was a general lack of understanding regarding electrolysis, with many candidates mistakenly linking it to galvanising or galvanic protection without grasping the process or its execution. Electroplating was often confused with painting, showing limited knowledge of surface finishing techniques. Most candidates scored in Band 1, with few reaching Band 2 or 3, highlighting a weak grasp of electrolysis in corrosion reduction. Recommendations for automotive parts were poorly addressed, and many candidates failed to apply electrolysis principles effectively in context.

Q21 assessed candidates' knowledge and understanding of material choice within the context of a drone body. The majority of responses were in mark band 2 (4-6 marks). Candidates mentioned a variety of materials, including some that were not relevant and/or a poor decision to use. Some candidates only discussed properties from the question stem; 'flight, resit impact and weather conditions'. Candidates that scored within the lower bands, lacked justification for their selection of material. A full range of marks was seen.

Q22 assessed candidates' knowledge and understanding of different power sources available in relation to the context of the question. The majority of responses were at the top of mark band 2 (5-6 marks) and the bottom of band 3 (7 marks). Candidates were able to demonstrate analysis of the different types of power sources and show evaluative skills with some reasoning as to which power source would be most suitable. Candidates that scored within the lower band, often did not relate their choices back to the context of the question and provided descriptive responses.

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 is 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 **13** 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 fourth 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 in section B were scenario based and ramped with AO2 and AO3 questions.

Areas of strength include:

- defining the term ‘continuous professional development (Q1). Candidates performed well with this recall of knowledge question and saw a spread of marks for this question.
- understanding of the health and safety responsibilities of employees in an engineering workplace (Q2). Candidates performed well with this question, with the majority of candidates gaining full marks for this question.
- explaining the applications of CAD software in engineering (Q6). There was a spread of marks with the majority of candidates scoring 2 marks or more.
- understanding of how health and safety legislation affects the frequency of accidents (Q7). This was answered well by the majority of candidates.
- explaining the behaviours the engineer should display during a presentation (Q11c). The candidates’ responses provided a good spread of marks (up to a maximum of 4 marks).
- understanding of how a change to batch manufacturing would affect a company (Q11d). The majority of candidates were able to gain partial marks with this question achieving 2 marks out of 4. Some candidates did not expand upon their answers to gain full marks.

Areas of weakness include:

- recalling the term ‘comparator’ as used in control systems (Q3). Candidates struggled with this recall question, with two-thirds of the cohort scoring 0 marks.
- understanding of the advantages of manufacturing resource planning (Q8b). Half the candidates scored 0 marks. Manufacturing Resources Planning was misunderstood as some candidates focused on Materials Resources Planning.
- explain how cyber-physical systems could influence manufacturing (Q9). Unfortunately, candidates did not perform well, with some candidates struggling to secure one mark with lack of understanding and knowledge.
- explaining why commissioning activities are undertaken by engineers with specialist skills in maintenance (Q10). More than half the candidates got 0 marks as they were not able to articulate commissioning activities correctly.
- understanding environmental legislation that are relevant to a company’s activities (Q11a). Attempts were made by candidates to answer this question, but candidates struggled to demonstrate application of knowledge and often incorrect legislation was evidenced.
- suggesting a type of input sensor on a control system that will measure the height of boxes moving along a conveyor belt (Q12a). More than half of the candidates got 0 marks. Many candidates did attempt this question, but examples of incorrect sensor-type were evidenced.
- explaining how the sensor identified in Q12a) would function (Q12b). Almost half of the cohort scored 0 marks. Most candidates did attempt this question, but many examples of incorrect sensor operation and function were evidenced for the scenario.
- explaining how actuators could be used in the scenario provided (Q12c). Less than half of the cohort scored 0 marks. Most candidates did attempt this question, but many examples of incorrect actuator operation were evidenced. Some candidates were able to describe an actuator but not how it functioned.

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.

Responses to extended response questions (ERQs)

The ERQ's in this paper, provided a mixture of responses from candidates. For the last two ERQ's, most candidates scored within mark band 2, however it is noted that ERQ 1 did not perform as well.

Q14 assessed candidates' knowledge and understanding of the roles and responsibilities of engineering bodies with regards to quality management in the manufacturing sector. Unfortunately, a notable proportion of candidates demonstrated a lack of understanding the role of engineering bodies, often focusing on product quality issues, rather than quality management.

Q15 required candidates to evaluate the benefits and limitations to the company of implementing a programme of SMED activities within their manufacturing operations. This question was answered well by some candidates, although a notable proportion of candidates only achieved marks within mark band 1 and 2. Some candidates provided generalised answers and did not link back to the context.

Q16 required candidates to discuss how the 6Rs of sustainability could influence the design and manufacture of plastic casing products. This synoptic extended response question was generally well answered by candidates, with a high proportion of candidates accessing marks in the middle mark bands. Some candidates gave generic responses that did not link back to the context; a small proportion gave responses that showed incomplete knowledge of the 6Rs.

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 and past papers 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 words ask of them. Understanding distinctions, such as between 'Explain' and 'Describe,' helps tailor responses effectively. Encouraging careful reading of questions prevents misinterpretation and improves accuracy. Structured guidance and practice enhance candidates' ability to respond appropriately. For example, the type of response required by an 'Explain' question requires a higher level of response than a 'Describe' question. Candidates should be reminded to read and understand all questions fully before responding to avoid losing marks due to misinterpretation/understanding.

Candidates' performance in understanding mathematics and scientific principles was noticeably poor, and candidates' overall responses in this area were below expectations for Level 3. Providers may consider regular practice, real-world applications, and structured resources to enhance understanding.

Providers should support candidates in developing their skills in writing responses to questions that ask for demonstration of understanding, application of knowledge, analysis and evaluation. Providers could foster evaluation skills by prompting critical thinking and justification of arguments. Model answers, peer reviews, and targeted feedback could be used to refine candidate responses during formative activities.

Performance in ERQs could be improved by encouraging deeper explanations and thorough analysis of different scenarios and relating it back to the context. To achieve high scores, candidates typically require a more comprehensive exploration of scenarios within their context. Candidates should also provide well-supported conclusions and justified arguments.

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.

A reminder to providers that if candidates choose to resit one or more exam papers, both papers must always be resat within the same assessment series. The best combined result from the exams sat in the same assessment series will be used to form the Core Examination subcomponent of the Core grade.

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 Autumn 2024 series.**

Grade	Mark range	Notional boundaries	
		Paper 1 (8730-031)	Paper 2 (8730-032)
A*	159-200	79-100	79-100
A	139-158	69-78	70-78
B	119-138	59-68	59-69
C	99-118	49-58	49-58
D	79-98	40-48	39-48
E	60-78	31-39	29-38
Unclassified (U)	0-59	0-30	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:

- Task 1: Research
- Task 2: Design
- Task 3: Plan
- Task 4: 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 fourth 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 resources)	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 potential design solutions for a secure recumbent cycle storage unit and confirm the client requirements. Candidate performance for this task, was mainly placed within band 2 descriptor, with the core skills element scoring at the top of band descriptor 2.

The majority of candidates research tasks were well planned and structured, utilising a variety of sources. Most candidates submitted the research notes separately to the technical brief which demonstrated good planning and understanding of the task requirements. Technical briefs for the middle to low band range of marks did not always fully meet the criteria as stipulated in the design brief and specification. As a result, some candidates marks limited by not fulfilling all the required information. Some technical briefs lacked structure and consistency. Some candidates did not provide sufficient research notes and a technical brief to demonstrate deeper understanding of the task requirements. Where work was referenced clearly and logically this supported the task requirements and candidates produced well-structured work utilising a variety of sources of information with relevant images to support their findings. Candidates who achieved the higher band marks typically used subtitles from the ESP and a range of sources and techniques as part of their research. Whereas candidates who achieved the lower/middle band marks did not always provide sources of where they obtained their research from and minimal references and techniques. The project specification and criteria from the brief was not always fully considered within the research task for the lower/middle band range of marks

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

Providers are advised to prepare candidates to develop their core skills by researching and using a variety of different techniques and sources to obtain relevant information. Provide candidates with understanding and reasons for why referencing and providing links to support where and how research is obtained is important. Candidates should be offered opportunities to practice writing reports, as well as use research notes to collate into a technical brief. They should be encouraged to use technical language and incorporate industry conventions when producing reports with a variety of different methods of communication to convey ideas. Practice assessments with candidates to help them to understand the importance of timing their tasks and being capable of managing their time so as not to miss key parts of the assessment due to lack of planning.

Task 2 – Design:

Candidates were required to develop their designs and prepare drawings and calculations for the recumbent cycle storage unit. Most candidates scored at the top of band 2 descriptor for this task, achieving 3 or 4 marks out of 6 marks for each marking grid.

Most candidates produced a 3D CAD drawing to represent their design ideas with sketches and some annotations. Core knowledge of technical language to communicate design proposals was achieved by the higher ability candidates with annotations reflecting how the requirements of the brief and specification were met. Core skills were not always fully demonstrated with lower ability candidates not producing fully dimensioned sketches. Most candidates attempted to provide a planned approach to interpreting the brief and specification. For a proportion of candidates, not all decisions were fully justified according to the requirements of the project with some superficial content relating to features and materials

being too expensive. Some designs lacked annotations to communicate the effectiveness of their design proposals. Within the design, candidates were required to calculate the number of recumbent cycles that can be stored within each unit, the majority of candidates calculated this correctly. In addition, candidates had to calculate the cost to manufacture the recumbent cycle storage units to determine the maximum amount of units that can be produced for the available budget, most candidates were able to provide an overall cost. However, not all candidates incorporated calculations for the cost of the units and budgets. A high proportion of candidates did not produce 2D orthographic drawings with accurate dimensions and title blocks to industry standard. When reviewing their design, some candidates provided a superficial evaluation of their design proposals referring to shape and choice of materials for the unit, whereas higher ability candidates were able to communicate how their design proposals met the requirements of the design brief and specification. Many candidates lacked technical language and justification of the decisions made. This lack of critical analysis, evaluation and justification limited those candidates to mark band 2.

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

Providers are encouraged to prepare candidates with CAD tutorials to learn the basics of 2D and 3D CAD with short videos to watch and practice. Candidates should be provided with clear guidance on how to create 2D orthographic sketches, how to add dimensions onto drawings, the importance of accurate dimensioning and use of the title blocks, referring learning to 'real life' case studies. Different types of sketching techniques should be practiced by candidates and their understanding of how to annotate sketches to convey ideas and meet the requirements of the brief should be developed. Candidates should be provided with practice to undertake calculations and understand the importance of linking these to their design proposals. Candidates should also practice evaluating their design proposals and understand how to review them against the design brief and to reflect on their quality. Candidates should be encouraged to focus on their design strengths, weaknesses, opportunities which can be developed further and challenges that they have overcome with clear justifications.

It is noted, that scanned images were often difficult to read, providers are advised to ensure an appropriate pencil is used for sketches. Scanned images should be 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 detailing the stages and considerations required to complete the design, development and manufacture of their final recumbent cycle storage unit design. Overall, the majority of candidates achieved band 2 descriptor.

The majority of candidates were able to produce a basic Gantt chart with a list of requirements to communicate their project plan. Some candidates attempted a critical path analysis. However, not all candidates were able to produce a Gantt chart to visually represent their project plan or schedules the required elements within the correct timescale. Some candidates were able to provide supporting information such as a risk assessment or a screenshot of part of the Gantt chart with some text to cover Health and Safety, waste management and sequencing of tasks. Not all candidates communicated installation and specialist equipment or manufacturing of their units to attain the higher band marks. Overall, most candidates achieved mark band 2 for displaying some gaps and inaccuracies with some limited

information regarding the stages of planning with vague assumptions. Candidates who performed well for this task were able to cover planning, preparation and communication showing greater depth of understanding by including milestones, suitable processes and contingency planning.

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. Provide candidates with guidance using Microsoft Excel to support them producing Gantt charts and how to plan a project with all necessary tasks from design, manufacture through to installation. Provide candidates with the knowledge to understand how different materials are manufactured and processed for various engineering applications. Provide candidates with skills to be able to communicate a variety of different techniques and methods of producing a project plan with support producing risk assessments, critical path analysis and Gantt charts.

Task 4 – Present:

Candidates were required to produce and deliver a presentation which addressed the task brief. The presentation was the strongest area for most candidates with very few candidates reading from 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 candidates were able to provide structured, clear presentations with a logical order of their project proposals. Some candidates were able to incorporate information to convey how they met the project brief and specification with clear communication using a variety of images and screenshots. Candidates overall were confident presenting their design proposals using Microsoft PowerPoint without using distractive behaviours. Most candidates were able to use correct terminology whilst presenting their projects and linked the research and design sections into their planning of the projects to fulfil the budget requirements. Some candidates failed to include images of their designs and some lacked clarity when explaining what they had designed with justifications and supporting explanations. Generally, most candidates were able to express the challenges they had overcome referring to findings within their projects whereas the lower ability candidates provided more superficial explanations. During Q&A sessions, several candidates struggled to provide in-depth responses, often responding with vague or contradictory information. Some candidates expanded on these challenges and articulated their design using technical language – this supported the higher mark band being awarded.

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

Providers are advised to give candidates the opportunity to develop their presentation skills in order to improve their confidence when speaking and presenting to others. Candidates should be provided with opportunities to reflect on challenging questions and the different responses they can provide. Candidates should be encouraged to view their presentations from the back of a room to view the size, scale, images and colour schemes used to identify if they are suitable for their intended 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 Maths, English and Digital Skills.

For maths skills, most candidates correctly calculated the number of recumbent cycles that can be stored within each unit and calculated the cost to manufacture the recumbent cycle storage units in relation to the budget. In addition, the majority of candidates attempted to annotate the sketches and drawings with dimensions.

For English skills, the language used was mostly correct 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 largely error free. Terminology was technical and consistent with the intended audience considered.

For digital skills, most candidates utilised digital skills, when producing the CAD drawing, planning chart (usually in excel or MS project) and the presentation using PowerPoint.

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

Providers are advised to encourage candidates to attempt all calculations to support their design solutions. Applied mathematics in project related settings will prepare candidates for the ESP. Candidates need to be reminded to show all workings out when performing calculations and to check them for errors. Ensure candidates are taught how to use digital software, such as word processing and presentation software to add value to their project proposal. Candidates should be encouraged to use digital tools creatively in presentations and reports and to industry standards.

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

Providers are encouraged to minimise the number of separate documents uploaded. E.g. ensure all relevant information for Task 2a (design task) is submitted in the same document with the correct filename. 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.

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 and Summer 2024 assessment series to achieve an A and E grade.

8730-035 ESP A grade exemplar:

- Example 1 (Summer 2024)
- Example 2 (Summer 2023)

8730-035 ESP E grade exemplar:

- Example 1 (Summer 2024)
- Example 2 (Summer 2023)

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 Autumn 2024 series.**

Grade	Mark range
A*	73-90
A	65-72
B	57-64
C	49-56
D	42-48
E	35-41
Unclassified (U)	0-34

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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