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T-LEVELS

T Level Technical Qualification in Maintenance Installation & Repair (8730-12)

Core Report

(Autumn 2025)

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Foreword

Autumn 2025 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 Maintenance Installation and Repair for 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.

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 Maintenance Installation and Repair for 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 2025 assessment series.

The grade boundaries (and notional boundaries where appropriate) that were used to determine candidates' final Autumn 2025 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 **17** 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

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:

- Q5 was one of the strongest performing items. This question required area and volume calculations, which most candidates completed accurately using fundamental mathematical skills.
- Q7a showed positive performance overall, with the majority of candidates able to achieve full marks. This also focused on essential mathematics.
- Q7c also performed very well. This question focused on probability, an area that again focused on using fundamental mathematical skills.
- Q12a and Q12c, assessing mechanical principles, saw notably strong performance. Mechanical principles was a comparatively strong topic for the majority of the cohort.

- Q16 also saw some achievement. This question focused on materials, and although the cohort was able to answer this well and achieve some marks, there was not many candidates who could achieve full marks.

Areas of weakness include:

- Q2c, which required candidates to state the purpose of a cylinder within the given context, was poorly answered. Responses frequently repeated the question or referred to unrelated storage functions, suggesting issues with technical terminology.
- Q7b, requiring candidates to calculate standard deviation, was answered incorrectly by the majority. Although the formula was provided, many candidates struggled with the iterative process and frequently stopped after calculating the mean.
- Q9, contextualised around definite integrals, was another weak area. This continues a trend from previous series where candidates demonstrate limited understanding of integral calculus and its basic applications.
- Q14b, requiring candidates to use differentiation to optimise dimensions, was poorly attempted. This reflects historic performance patterns, with many candidates demonstrating only limited understanding of calculus despite its relevance within Level 3 study.

As with previous series, candidates' understanding of core mathematical and scientific principles was noticeably below the expected Level 3 standard, and this had a significant impact on performance across multiple items. Written responses often lacked sufficient detail, technical precision, or contextual relevance to access higher marks.

Responses to extended questions (ERQs)

Performance across the ERQs showed a similar distribution to previous series, with the majority of candidates achieving within bands 1 and 2, although the full mark range was accessed. These questions had the highest discrimination value across the cohort.

Higher achieving candidates typically provided clear, contextually grounded explanations supported by technical reasoning. Lower achieving candidates tended to produce generic responses that lacked evaluation, justification, or explicit links back to the scenario. Many candidates struggled to demonstrate analytical or evaluative skills consistently, which limited opportunities to access the upper mark bands.

Most candidates attempted all ERQs, and stronger candidates provided more detailed and developed responses than those in the lower bands. As in previous series, it remains important that candidates are supported in applying their knowledge to the specific scenario and in demonstrating how their reasoning relates to the context.

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 **12** 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) 1a/b, 2 and 3 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

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:

- Q4: Candidates were able to clearly explain the main duties of organisations in relation to diversity. A full spread of marks was achieved.
- Q7a: Candidates demonstrated a understanding of the advantages of Failure Mode and Effects Analysis (FMEA).
- Q10b: Most candidates were able to explain the importance of effective stock and inventory management. This question produced a spread of marks.
- Q10ci: Candidates were generally able to give an advantage for a company using a product arrangement (layout) for their machines and processes.
- Q12: There was a good understanding of common injuries associated with tools and equipment, along with control measures to reduce risk. Many candidates produced well-structured responses that achieved mark band 2.

Areas of weakness include:

- Q3c, Q3d, Q3e: Recall of drawing features, standard abbreviations, and GD&T symbols proved inconsistent. While some candidates demonstrated accurate knowledge and achieved full marks, others showed limited understanding.
- Q5a & Q5b: Understanding of limits and fits was mixed. Some candidates successfully calculated the upper and lower values from the table provided, but few were able to accurately explain the type of fit required.
- Q7b: Explaining a disadvantage of FMEA was challenging for weaker candidates, who often gave generic statements lacking technical relevance.
- Q8: Although many candidates could provide a suitable advantage of an open loop control system, the majority struggled to convey a disadvantage.
- Q10ai–iii: Candidates frequently showed limited understanding of key financial concepts and were unable to clearly explain the implications for a company.
- Q10d: Hybrid technologies in manufacturing were often misinterpreted, with many candidates failing to explain their use or benefits accurately.
- Q11: The benefits of implementing the 6S approach were misunderstood by many candidates, with a significant number confusing it with Six Sigma.
- Q14: Discussion of environmental legislation issues relating specifically to waste generated by an agricultural machinery company was weak. Many candidates conflated agricultural waste with general waste or broader environmental issues, indicating a lack of contextual clarity.

As in previous series, AO2 responses often showed basic knowledge without sufficient expansion or contextualisation to access higher marks. Many candidates did not develop their explanations in enough depth to demonstrate secure application of knowledge to the given scenarios.

Response to extended question (ERQs)

The ERQs generated a range of responses, with the mark bands accessed across the cohort.

Question 13 assessed candidates' understanding of the key responsibilities of a company project manager involved in developing a new solar energy system. Many candidates demonstrated good knowledge of the role, including links to engineering and manufacturing processes, regulatory requirements, and customer needs.

Question 14 asked candidates to discuss environmental legislation related to waste produced by an agricultural machinery company. This proved challenging for most candidates. Many confused agricultural waste with general waste or broader environmental impacts, leading to vague or inaccurate responses. A small proportion of candidates left the question unanswered or provided minimal relevant content, indicating limited familiarity with sector-specific environmental legislation.

Question 15 required candidates to discuss the stages involved in the design, manufacture, and maintenance of an autonomous delivery drone for urban environments. Overall performance on this question was good. Most candidates demonstrated an ability to integrate knowledge across different stages of the product lifecycle, resulting in marks within the middle bands. However, responses commonly lacked deeper analysis or evaluation. Few candidates justified design choices in detail or fully considered real-world constraints such as regulation, safety requirements, or maintenance challenges.

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 2023/2024/2025 & Autumn 2023/2024/2025) as formative assessment to support candidates in preparation for summative assessment.

In preparing candidates for both short-answer and extended questions, providers should focus on developing candidates' ability to:

- recall basic knowledge accurately;
- demonstrate clear understanding of processes, principles, and terminology;
- apply their knowledge within appropriate engineering contexts; and
- analyse and evaluate information where required.

Performance in ERQs could be further enhanced by encouraging candidates to produce in-depth explanations, context-specific analysis, and well-reasoned conclusions or justifications. Higher band responses typically show clear links to the scenario, structured arguments, and an ability to consider implications or secondary effects. Developing these skills through regular practice, model answers, and structured feedback will support candidates in accessing higher mark thresholds.

To further strengthen performance, centres are encouraged to support candidates in developing the skills required to construct responses that demonstrate understanding, application of knowledge, analysis, and evaluation. These higher order skills remain essential for securing marks in the upper bands of the ERQs.

Mathematical skills continue to present a significant challenge for many candidates, mirroring trends seen in previous series. Although some improvement was evident, a substantial proportion of candidates continued to struggle with basic numerical techniques, interpreting data accurately, and selecting and applying appropriate units and formulae. Difficulties were particularly evident when candidates were required to work with data presented in real world or business-related contexts. Targeted practice that relates mathematical concepts directly to practical engineering scenarios would help candidates to develop greater confidence and accuracy.

Candidates would benefit from further support in recognising the demands of different command verbs. Questions requiring an *Explain* response demand more detail and depth than those requiring *State* or *Describe*. Misinterpretation of command words remains a barrier to accessing marks, particularly when explanation, justification, or contextual linkage is required. Centres should therefore remind candidates of the importance of reading each question carefully and ensuring they fully understand what is being asked before responding.

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 2025 series.**

Grade	Mark range	Notional boundaries	
		Paper 1 (8730-031)	Paper 2 (8730-032)
A*	159-200	78-100	80-100
A	140-158	69-77	71-79
B	121-139	59-68	61-70
C	102-120	49-58	52-60
D	83-101	40-48	43-51
E	65-82	31-39	34-42
Unclassified (U)	0-64	0-30	0-33

8730-033 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
- 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.

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

The project is based around a brief which provides information on a Maintenance, Installation and Repair 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	Report	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 approached the research task with confidence. Most were able to identify relevant induction motors for the lift, incorporating Health & Safety, tooling, and functional considerations into their responses. Many included appropriate diagrams and explored alternatives, showing an encouraging level of technical awareness. Referencing showed signs of improvement, with several candidates embedding sources within their work; however, referencing consistency remains an area for further development. A small number of submissions showed an overreliance on AI-generated content. Nevertheless, the overall standard of research showed a positive trend compared to previous series.

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

Providers are advised to continue reinforcing structured research habits, including proper referencing. Introducing sessions on how to assess the credibility and relevance of information will support higher-level responses. Practical classroom activities that simulate real-world research tasks—such as sourcing and justifying equipment for engineering problems—will help contextualise the research process. Encouraging learners to move beyond description and towards comparative analysis will support stronger performance.

Task 2 – Report:

This task was generally well approached, with most candidates clearly identifying and justifying their induction motor selections. Most reports were well-structured and demonstrated solid written communication. Stronger submissions featured clear explanations, structured arguments, and sound use of visual elements such as diagrams or calculations. However, the standard of technical drawings was a recurring issue. Many candidates submitted basic sketches rather than formal engineering drawings, which limited their access to higher marks. Some students also missed opportunities to provide robust conclusions or evaluations.

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

Providers are encouraged to embed engineering drawing expectations from the beginning of delivery. This includes both freehand and digital drawing techniques, ensuring that learners understand industry standards for layout, labelling, and scale. Report-building exercises can help candidates develop depth and structure in their writing. Peer feedback and review of sample reports will also help learners understand the expectations for evaluative content and improve their ability to present ideas clearly and professionally.

Task 3 – Designs:

Planning tasks were the most challenging for candidates in this series. While some learners showed creativity and an understanding of task constraints, many plans lacked depth and industrial relevance. Few included detailed Gantt Charts or Critical Path Analysis, and justification for planning decisions was often limited. Candidates who structured their approach logically and accounted for dependencies and testing phases generally performed better. However, many learners missed the opportunity to present their planning thinking in a suitable format.

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

Providers should invest time in teaching standard planning tools and techniques, including software-based planning (e.g., MS Project, online Gantt tools). Exposure to worked examples and case studies will help learners understand how to structure and justify their plans. Centres may also consider using industrial templates for planning documentation to prepare learners for future assessments and employment.

Task 4 – Present:

This was one of the stronger areas in the assessment, with many candidates presenting their work confidently. Candidates generally conveyed engineering concepts clearly and showed good engagement with the brief. Some made strong use of digital presentation tools, incorporating slides and visual aids to support their message. A small number of presentations were affected by environmental distractions (e.g., background noise) or heavy reliance on reading from slides. Additionally, some candidates missed the opportunity to tailor their presentation style for a non-technical audience, which limited their marks in the higher bands.

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

Providers should continue promoting regular presentation practice in class, including formal and informal delivery formats. Encouraging students to present to varied audiences (peers, tutors, or simulated clients) will help develop confidence and adaptability. Introducing peer and tutor feedback loops can help learners refine both content and delivery. Providers should also guide learners on how to use digital tools effectively, covering aspects like slide design, voice modulation, use of notes, and audience engagement strategies.

Maths, English & digital skills:

Most candidates communicated their ideas clearly in writing, though frequent errors in grammar, spelling, and punctuation were noted across the cohort. The use of technical engineering vocabulary was limited in many submissions.

Maths remained the least confident area for many learners. While most attempted calculations, errors were common—particularly in applying formulas or including the correct units. Some learners only wrote the formula without working through it or applying it to the scenario.

Digital skills were generally sound, with most candidates effectively using word processing and presentation software. However, few explored more advanced features such as animation, or interactive elements.

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

To strengthen performance across all three skill areas:

Providers should integrate numeracy and technical language development into every stage of delivery, not just standalone sessions. Opportunities for applying Maths should be embedded into real project task. Technical vocabulary should be explicitly taught and reinforced through applied use. For digital skills, providers are encouraged to explore beyond the basics. Regular use of digital tools in all tasks will also help learners become more fluent and confident in applying them effectively.

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 advised to ensure where separate documents or tasks are requested these and uploaded as separate files.

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.

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)**

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 2025 series.**

Grade	Mark range
A*	70-90
A	62-69
B	54-61
C	46-53
D	38-45
E	31-37
Unclassified (U)	0-30

8730-033 Maintenance Installation & Repair

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

T-LEVELS

Get in touch

City & Guilds Technicals Quality Team

We 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:

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