T-LEVELS | IfATE Institute for Apprenticeships and Technical Education

# T Level in Engineering and Manufacturing for Maintenance, Installation and Repair

## 8712-311 Mechanical Occupational Specialism Report (Summer 2024)

Version 1.0

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| Version and date | Change detail | Section |
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# Foreword

### Summer 2024 Results

The occupational specialism qualification is made up of one component, which need to be successfully achieved to attain the T Level Mechanical Occupational Specialism.

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 **Occupational Specialisms.**

This report provides general commentary on candidate performance in the occupational specialism assignment. 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 that were used to determine candidate's final summer 2024 results are also provided. **For summer 2024, as per Ofqual guidance, the approach to grading recognises that these are new qualifications.**

# 8712-311 Occupational Specialism

**Task 1 Plan the service and maintenance activities:**

Candidates were required to produce several key documents for marking: a list of requirements and resources, including justifications for their selections; a completed risk assessment; and a method statement.

Higher performing candidates produced detailed risk assessments, clearly identifying risk factors, control measures, and most potential risks and hazards, with considerations of likelihood and severity. Their method statements fully considered the scope, processes, tools, and equipment, were logical and easily followed by a third party, and used relevant and accurate technical terminology throughout. These candidates also provided a comprehensive list of all resources and requirements, including technical documentation, with satisfactory justifications for all selections. Furthermore, they presented a satisfactory range of materials, components, and resources, demonstrating a solid understanding of the technical requirements.

Lower performing candidates evidence often lacked detail in their risk assessment documentation. Their method statements showed clear consideration of scope, processes, tools, and equipment but were not always consistent. They selected a range of materials, components, and resources with some evaluation of their working condition.

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

To support candidates with assessment preparation, providers should supply detailed examples and templates of exemplary risk assessments, method statements, and resource lists. A clearer focus on key assessment components like risk assessment techniques, including creation of templates, method statement development, and resource selection are essential. Regular feedback sessions are also crucial for offering constructive criticism, clarifying concepts, and guiding candidates through the assessment process, ensuring they are well-prepared and confident in their submissions.

**Task 2 Perform the maintenance activities:**

Candidates were tasked with performing service and maintenance activities, identifying and repairing one mandatory fault and three optional faults on a designated centre lathe.

Higher performing candidates generally demonstrated proficiency by accurately detecting and diagnosing all four faults using appropriate techniques with precision. They successfully resolved these faults to a high standard. However, many candidates overlooked the importance of calibration and tolerance values to ensure machine accuracy as per manufacturer specifications. Additionally, while they completed test records, updated maintenance logs, and annotated method statements, their justifications were superficial.

Lower performing candidates successfully identified and resolved all four faults, displaying a good grasp of fault-finding techniques, albeit with minor inaccuracies. Their resolution techniques were generally effective but lacked adequate reference to manufacturer specifications and other technical documentation.

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

Providers should ensure that candidates practice fault detection using systematic techniques aligned with best practices. Candidates should be encouraged to consult relevant technical documentation pertinent to the maintenance activities.

**Task 3A Review and report the maintenance activities:**

Candidates were required to produce a technical report and a revised maintenance schedule, accompanied by justifications.

Despite candidates submitting these documents, the technical reports generally lacked procedural coherence and detailed tool usage, while the revised maintenance schedules lacked sufficient justification. Higher performing candidates demonstrated strong report-writing skills aligned with the assessment criteria, encompassing comprehensive reviews of maintenance activities, effective evaluation of fault detection and diagnosis methods, and recommendations for future enhancements. They also addressed waste disposal procedures and implemented reporting mechanisms to manage stock levels, materials, and resources efficiently. Lower performing candidates provided less detailed reports, many were able to explain the faults they had diagnosed but lacked sufficient detail when discussing the resolution methods and future maintenance recommendations.

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

Enhance guidance on technical report writing, focusing on procedural clarity, detailed tool usage descriptions, and justified revisions in maintenance schedules. Also, include exercises that require candidates to apply fault detection and diagnosis methods effectively, referencing relevant technical documentation throughout. A greater focus on waste disposal methods and reporting practices for managing stock levels, materials, and resources is also advisable.

**Task 3B Peer review:**

Candidates were required to conduct a peer review of two annotated method statements provided by the assessor, write detailed feedback for each, and subsequently update their own annotated method statements based on the peer feedback received.

Generally, candidates demonstrated proficiency in this task. However, a notable gap was observed in candidates' ability to justify the modifications made to their method statements based on the received feedback, indicating a need for stronger analytical reasoning. Furthermore, the quality of feedback provided by peers often lacked constructiveness and specificity, limiting its effectiveness in facilitating meaningful improvements.

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

Enhance peer review training, focusing on developing skills in constructive and specific feedback. Emphasize the importance of analytical reasoning for justifying modifications based on feedback. Provide comprehensive examples of annotated method statements and other technical documentation e.g. risk assessments and maintenance schedules, demonstrating effective incorporation of feedback. Organise mock peer review sessions for practice and use

Performance Observation (PO) forms consistently to offer detailed feedback on strengths and areas for improvement.

**Task 4 Complete Handover:**

Candidates are required to conduct a formal meeting with their supervisor to facilitate the return to service and complete the handover procedures. This included demonstrating machine functionality and confirming the completion of assigned tasks. Video evidence was captured to document the candidates' execution of tasks and amendments to their method statements.

All candidates exhibited sound engineering techniques and utilised technical terminology, but to varying extents. Higher performing candidates demonstrated greater confidence and fluency in using technical terminology, presenting their work in a structured and coherent manner, while lower performing showed a lack of structure and consistency in their presentations.

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

Improve candidates' presentation skills and confidence in using technical terminology, ensuring their work is structured and coherent.

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

It is recommended that providers utilise and deliver the sample assessments as formative assessment to support candidates in preparation for summative assessment. This will not only help prepare candidates but will be an ideal opportunity for marker training and standardisation.

The centre staff and candidates must thoroughly read the assessment to ensure the work is carried out to the design criteria required. Moderators will be working to the assessment brief and marking grids and making judgments accordingly.

Appropriate PPE should be worn at all times and assessors should ensure that candidates are working safely and should not come to harm or risks to health from the materials, tools or equipment used in the assessment.

Where photographic evidence is requested ensure all stages of servicing and maintenance activities are included.

Photographs do not need to be great in number but do need to show everything a moderator would require to be able to perform the remote moderation work. Photos need to be of sufficient resolution to enable “zooming in” to determine quality. Photographs should be collated into one document, and well labelled, and with commentary if possible.

Videos will need to show specific and important points of the assessment, for instance the candidate completing functionality demonstrations.

Utilisation of the Photographic Evidence Guidance Document would support providers to capture relevant and valuable information for marking and moderation purposes to support practical observation feedback.

Providers should ensure that practical observation forms are detailed, covering all aspects of the activity being observed. The practical observation records should contain accurate information, specific to the candidate being observed and offer differentiating commentary between individual candidate’s performance utilising the marking grid terminology. They should also identify areas of strength and weakness to distinguish between the different qualities of performance and to facilitate accurate allocation of marks once all evidence has been submitted.

## Support materials

**Sample and Past Occupational Specialism (OS) Assessments:**
It is recommended that Providers utilise and deliver the **sample OS** as well as **past OS** (if available) as formative assessment to support candidates in preparation for summative assessment.

Sample and past OS (if available): T Level Practical Assignment – Mechanical: Sample Assessor Pack (cityandguilds.com)

**Guide Standard Exemplification Material (GSEM) Assessments:**
It is also recommended that Providers utilise the **GSEMs** to help understand the standard required to achieve a Distinction and Pass grade.

8712-311 OS Distinction GSEM: T Level Technical Qualification in Maintenance, Installation and Repair – Mechanical – Guide Standard Exemplification Materials - Distinction (cityandguilds.com)

8712-311 OS Pass GSEM: T Level Technical Qualification in Maintenance, Installation and Repair – Mechanical – Guide Standard Exemplification Materials – Threshold Competence (cityandguilds.com)

**TQ Occupational Specialism Assessment Process Guide:**
The guide gives support to Providers in preparing for and delivering T Level Occupational Specialism assessments.

Link: TQ Occupational Specialism 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 Occupational Specialisms. The below link provides details on upcoming in person events, live webinars, on-demand webinars and preparation for the Occupational specialism assessment.

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

## Grade boundaries

The table below shows the grade mark ranges for the Occupational Specialism **for the summer 2024 series.**

| Grade | Mark range<br>8712-311 |
|---|---|
| Distinction | 66-90 |
| Merit | 50-65 |
| Pass | 35-49 |
| Unclassified (U) | 0-34 |

## 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

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E: **technicals.quality@cityandguilds.com**

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

Web chat available **here**.