T Level Electrotechnical Engineering Occupational Specialism

8710-353 Occupational Specialism Report (Summer 2024)

Version 1.0

Contents

Foreword

Summer 2024 Results

The occupational specialism qualification is made up of one component, which needs to be successfully achieved to attain the T Level Electrotechnical Engineering 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 Building Services Engineering for Construction **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.**

8710-353 Electrotechnical Engineering Occupational Specialism

Candidate Performance by task

Task 1

There was a lack of supporting calculations to justify the design process. Few candidates provided detailed calculations and where reference to BS 7671 requirements were made these were generally limited to Voltage drop. Few candidates applied the correct approach to the design of ring final circuits. Few candidates provided any justifications to support their cable lengths.

When assessing the general characteristics most candidates responded by quoting sections of Chapter 3 of BS 7671 without considering the scenario or how the requirements will impact on the electrical design. Few candidates considered external influences but when they did, they did not show an understanding of how these would impact on the installation. For example, few candidates considered the need for flexible conduit to be used to connect to vibrating equipment such as motors and focused on more general terms such as vibrations causing equipment to become loose without giving any further detail of how this could be avoided.

Earth fault loop calculations again lacked supporting calculations and justifications, most candidates produced calculations without the use of formulas and either did not apply correction factors, or used the incorrect correction factors, but only higher scoring candidates applied the correct approach to the ring final circuit with most candidates not considering this or incorrectly diving by 2. A number of candidates gave the correct Max Z_s values, but a significant number used the onsite guide values rather than those in BS 7671. Few candidates went on to confirm that their calculated values were acceptable.

Materials lists often went beyond the basic components with a number of candidates including containment and cables, however some candidates included items that were not relevant such as building materials. Few candidates considered the scenario when specifying components, for example only higher scoring candidates identified that the accessories such as sockets should be metal clad.

PO Forms provided little value to the task evidence with the majority containing an overview of the candidate evidence which could be seen in the other Task evidence. Few providers made comment on how well the candidates referenced BS 7671 or other relevant documentation.

A minority of providers included additional evidence such as method statements and risk assessments which was not required or considered during moderation.

Task 2

Most candidates completed the installation to a good overall standard. It was clear for some providers that there was a lack of additional measurements set with candidates given autonomy to position some parts of the installation rather than working to provider measurements that suited the work area. Most candidates completed the full task within the specified time, however for a minority of candidates/providers it appeared the allocated time for the task was exceeded.

Photographic evidence was mostly in line with the assessment guidance however some providers included additional evidence that was not considered. This additional detail should be included in the PO Form commentary.

A number of providers did not provide candidates with a clean work bay which made it difficult to see how the candidate had measured and marked out or how the bays were made good afterwards.

A number of candidates were found to be carrying out the Z_e/Z_{db} test without safe isolation and for some candidates with the main switch and circuit breakers closed.

A number of providers failed to include a professional discussion with the candidate evidence and for those who produced the evidence the discussion was scripted and often rehearsed with candidates giving very similar responses or the assessor using leading questions. Few of the discussions were candidate led.

The content of the PO Forms varied amongst providers with some providing good detail that clearly supported the candidates' performance, however there were a number of providers that gave limited detail. Few providers gave detail of the handover process or detail of decommissioning.

Task 3

The majority of the candidates were successful in identifying all of the faults, however the content of the candidate fault reports, and PO Form commentary generally lacked detail. Only higher scoring candidates demonstrated a logical approach or gave detail of test results, and few candidates made any effort to locate the position of the fault where this was necessary.

Few candidates gave detailed rectifications with only higher scoring candidates considering the nature of the fault in the rectification process. Some providers did not include the fault reference or fault description on the fault reports and a minority of candidates had the incorrect reference for the fault.

PO Forms generally lacked detail and added little to the evidence within the fault reports, few providers gave detail on the handover and communication with the client.

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.

Task 1 Planning the installation

Candidates should be encouraged to provided full written calculations to support their design of the electrical installation and clearly reference BS 7671 or IET Onsite Guide to justify their design. A list of reasonable assumptions should be included to support any decisions taken by the candidate where there was no clear guidance given in the scenario. When designing ring final circuits candidates should ensure that their design meets the requirements for Regulation 433.1.204 of BS7671.

Where risk assessments are required, the candidate should apply this to the full scenario and consider the wider range of hazards. Candidates should be able to demonstrate an understanding of the probability factors and risk ratings within their risk assessment. When assessing the General Characteristics candidates should consider the scenario presented and identify which of the requirements of Chapter 3 apply and how the requirements of BS 7671 will impact on the electrical design.

When producing materials lists candidates should consider the wider range of materials required for the scenario such as cabling and wiring systems and not provide a simplistic list based upon only the items contained within the installation drawing.

PO Forms should be used to capture the candidate's approach to the electrical design. How fluent they were in the use of BS 7671 and other reference materials that are not captured within the evidence produced by the candidate.

Task 2 Installation, commissioning and decommissioning

The Provider should ensure that the guidance provided in the Occupational Specialism Assessor Pack is read fully and applied. The items marked in red must be pre-fixed by the provider prior to the candidate beginning their installation.

Candidates across a number of providers were not set additional dimensions to Figure 7 – Practical Installation layout which limited the candidate's ability to work to tolerance. Whilst certain dimensions are specified within the installation drawing the provider should dimension other measurements to meet the needs to the work area available. The circuit information given in the drawing should be carefully read to avoid any errors within the installation such as incorrectly installed the Steel Wired Armoured cable as a radial power circuit rather than as the distribution cable supplying the consumer unit as stated in the guidance.

Providers should follow the guidance given in the Assessor Pack to ensure that all evidence is collected in a timely manner and as specified in the guidance for each task and the completion photograph should include the total time taken to install the electrical system.

Photographic evidence should be of a good resolution, taken from face on capturing the full installation. To ensure that the photographs can be clearly linked to the candidate, it is

recommended signage with the candidate details and timings are included in the assessment bay.

When completing the initial verification candidates should carefully consider the assessment requirement for safe isolation and take note of the scenario to determine whether the earth fault loop impedance test is Z_e or Z_{db} as some providers performed the incorrect test to that required by the guidance given in the OS pack.

Providers are to ensure that all resources required to complete the practical installation are available to the candidate and it is recommended that the candidates are given the autonomy to select their materials from a range of options rather than being provided with all the materials within their assessment bay.

Where candidates carry out calculations to verify their test results these should be included alongside the other documentation completed during the initial verification.

PO Forms for this task should clearly capture the approach that the candidate took to complete the task, providing descriptive and differentiating detail that allows a third party to gain a clear understanding of the candidates' strengths and weaknesses throughout the task. A number of providers failed to capture the candidate performance when handing over the completed installation to the client.

The approach to any professional discussion should allow the candidate to take the lead and demonstrate their approach to, and understanding of, the decommissioning process. The use of a set script or leading questions should be avoided, and the assessor should facilitate the discussion to allow the candidate to perform naturally.

Task 3 Carrying out maintenance

During the preparation period Providers should encourage the candidate to provide clear written detail of all tests completed as well as the results obtained for each test when identifying the fault. Candidates should be encouraged to apply a logical approach and identify the location of the fault within the circuit wherever possible.

Candidates should clearly consider the fault rectification process and wherever possible use industrial terminology within their written reports.

PO Forms for this task should clearly capture the approach that the candidate took to complete the task, providing descriptive and differentiating detail that allows a third party to gain a clear understanding of the candidates' strengths and weaknesses throughout the task. A number of providers failed to provide any sufficient detail on the candidates' approach to the fault-finding process or the communications with the client during the assessment.

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 Technical Qualification in Building Services Engineering for Construction qualifications and training courses | City & Guilds (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.

8710-353 OS Distinction GSEM Electrotechnical Engineering Distinction Guide SEM

8710-353 OS Pass GSEM: Electrotechnical Engineering Threshold Competence Guide SEM

Grade Standard Exemplification Material (Grade SEM) Assessments:
It is also recommended that Providers utilise the **Grade SEMs** to help understand the standard that was required in the summer 2023 assessment series to achieve a Distinction and Pass grade.

8710-353 OS Distinction Grade SEM: Electrotechnical Engineering Distinction Grade SEM

8710-353 OS Pass Grade SEM: Electrotechnical Engineering Pass Grade SEM

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 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 Occupational Specialism **for the summer 2024 series.**

Grade	Mark range 8710-353
Distinction	69-90
Merit	53-68
Pass	37-52
Unclassified (U)	0-36

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:

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Web chat available **here**.