

T Level Technical Qualification in Building Services Engineering for Construction

Electrical and Electronic Equipment Engineering (8710–32) (352)

Assessor pack

Practical Assignment 2020 – Sample

Version and date	Change detail	Section
1.1 Jan 2021	Minor amendment to Band 1 descriptor	Marking Grid (Health and Safety)
1.2 March 2021	Additional sentence detailing templates provided for task 1 requirements	Task 1 Pg 13
1.2 March 2021	Minor amendment of task 2 Assessor observations	Task 2 Pg 14/15
1.2 March 2021	Minor amendment of task 3 Assessor observations	Task 3 Pg 16

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Assessment

The assessment for this component consists of a practical assignment that includes a project brief and then a number of tasks for the candidate to complete. The tasks set produce assessment themes that cover a range of knowledge and skills from the performance outcomes in the qualification specification. They are designed to allow judgement of the candidate to be made across different categories of performance.

The assessment for this component has been allocated a set number of marks against each task, based on weightings recommended by stakeholders of the qualification. This mark allocation remains the same for all versions of the assessments, ensuring consistency across assessment versions and over time.

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Performance outcomes

The weightings for each performance outcome will remain the same for every version of the practical assignment. This ensures the appropriate depth and breadth of knowledge and skills for each specialism can be reliably assessed in every version and meets the needs of industry while keeping comparability between each assessment over time.

Performance outcome	Typical knowledge and skills	Weighting
Install electrical and electronic equipment systems	Displays a breadth of knowledge and practical skills that enables them to complete the given installation tasks successfully. Shows the technical skills to use tools and materials safely, and in a logical order. Displays knowledge and understanding in relation to the planning and design of systems as well as the ability to modify existing systems to accommodate equipment and technologies.	39%
Commission electrical and electronic equipment systems	Working in a safe manner, carrying out inspection and testing and interpreting test results, use of tools and equipment, use of diagnostic equipment, working with documentation (manufactures instructions, technical regulations and building regulations), carrying out tasks in clear and logical sequence, carrying out clear record keeping of test result and setting up and commissioning systems for intended use. Providing clear and effective information on product use and care to clients.	34%
Maintain electrical and electronic equipment systems	Applying knowledge and understanding through practical skills to solve a particular scenario/problem. Analysing data and justifying decisions/approaches taken e.g. materials, techniques, appropriate protection of customer property and effective use of materials, consideration of costs and impacts to environment. Following safe systems and procedures and providing clear technical and non-technical advice.	27%

Grade descriptors

To achieve a pass (threshold competence), a candidate will be able to:

Demonstrate an acceptable performance that meets the requirement of the brief and that is required to enter the industry to begin to work in the occupational area.

Demonstrate the adequate technical skills for installing components that is in line with industry standards.

Interpret information, demonstrate planning, assess risk and follow safe working methods when applying practical skills to an acceptable standard as recognised by industry.

Demonstrate basic knowledge and understanding of the principles and processes required for Electrical and electronic equipment engineering.

Work safely showing an understanding in the selection and use of tools and equipment and demonstrate a basic awareness of straightforward preparation and application processes.

Attempt some complex tasks and the level of performance mostly meets an acceptable level.

Identify causes of faults and have some knowledge and skills in how to rectify them.

Mostly use industry terminology accurately in both written and verbal contexts.

To achieve a distinction, a candidate will be able to:

Demonstrate an exemplary performance that fully meets the requirement of the brief and is able to enter the industry to begin to work in the occupational area.

Demonstrate exemplary technical skills for installing components that is in line with industry standards. They will also demonstrate relevant and comprehensive knowledge and understanding of principles and processes through the tasks completed.

Work safely and make informed and appropriate use of tools, materials and equipment within the environments that they are working in. They will competently and independently interpret information and apply the technical skills to practical tasks and procedures to an exemplary standard as recognised by industry, producing an excellent quality of work that meets acceptable tolerances, regulations and standards.

Confidently attempt some complex tasks and the level of performance meets an exemplary level.

Identify causes and diagnose faults and have a thorough understanding and the skills to be able to repair and rectify them.

Consistently use accurate industry terminology in both written and verbal contexts.

Assignment Brief

You have been called to a small office where the client wishes to modify their electrical system to accommodate smart technologies as well as new data systems.

The existing electrical installation, represented in Figure 1, has the following circuits installed: -

Circuit No	Rating	Cable csa Live/cpc	Designation	Represented by
1	32 A	4/1.5	Office sockets	X3 Socket-outlets
2	16 A	2.5/1.5	Heating system	X1 FCU
3	6 A	1.5/1.5	Main lights	Luminaire A
4	6 A	1.5/1.5	Display lights	Luminaire B
5	6 A	1.5/1.5	Toilet lights	Luminaire C

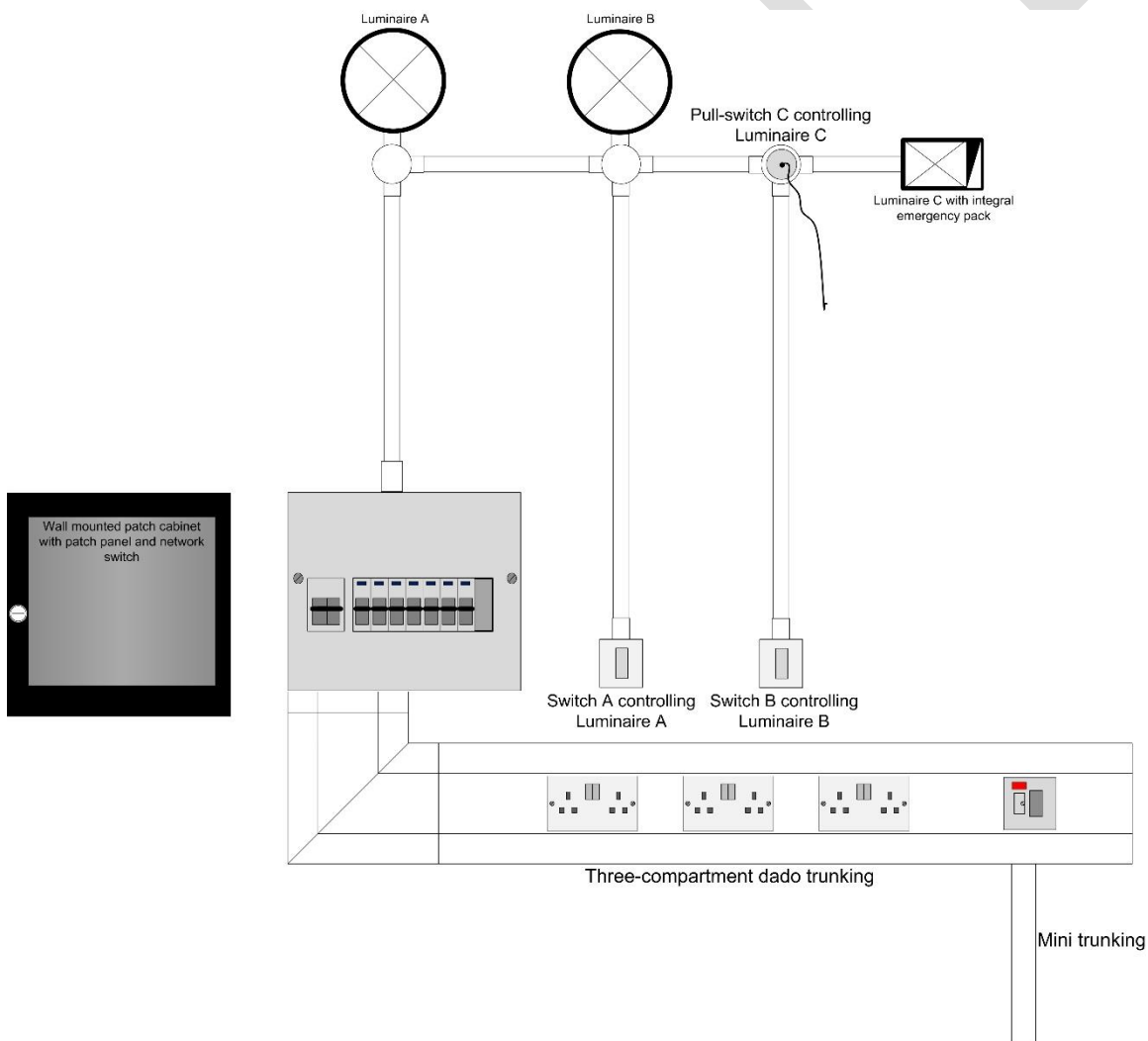


Figure 1

The client requests the following to be undertaken, and is also detailed in Figure 2,

- Two socket-outlets to be smart capable allowing app-based control. Circuit shall not have any RCD protection to minimise potential nuisance tripping
- Smart heating controls for a new gas central heating system. The gas boiler, pump and valve have been installed by others, but the heating controls and associated wiring is required as part of these works. System must allow for app-based control
- Office lighting to be controlled by a smart wireless two-way switching system as well as app-based control
- Display lighting to be a dimmable wireless control system as well as app-based control
- Removal of any redundant existing switching arrangements. Disposal of materials to current waste regulations or consideration to sustainability and recycling
- Toilet lighting, which incorporates an emergency pack, to be controlled by a new occupancy switch
- Extension of existing dado trunking to allow data wiring from wall mounted patch cabinet
- X2 new data outlets linked to patch cabinet and network switch
- X1 new socket-outlet on a new circuit to supply equipment within patch cabinet and supplied using PVC SWA cable. Circuit shall not have any RCD protection to minimise potential nuisance tripping
- Installation and commissioning of new broadband router within patch cabinet
- Installation and commissioning of a Wi-Fi extender supplied from existing standard 13 A socket-outlet. The Wireless password key is to be set as that used by the router and may utilise the adjacent data outlet if required by the extender

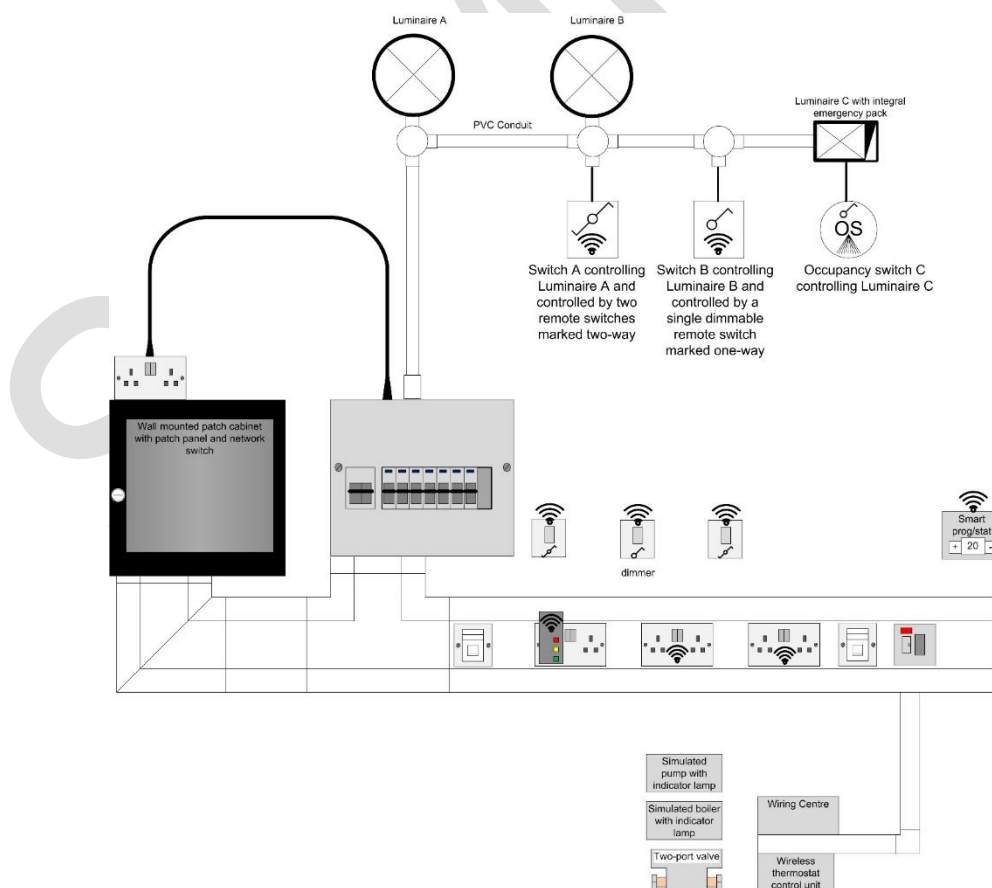


Figure 2

Whilst undertaking the installation and commissioning work, the client has some further maintenance work that needs attention. These are detailed in the task instructions.

The office is occupied by three employees and in use whilst all work is undertaken.

All work must be compliant with BS 7671 and other relevant regulations. All necessary certification must be completed and handed to the client on completion of the installation and commissioning work.

This assignment has a time allocation of 16 hours.

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Task specific guidance

All work carried out should be to industry standards, in a safe manner. Candidates who do not work in accordance with the Electricity at Work Regulations should be stopped and the assessment terminated.

Photographs should be used to support the qualitative statements captured on the PO form. Photographs of each component completed must be taken and must have the time, date and candidates name attached so that they can be differentiated. The candidate does not need to be in the photograph, the purpose of the photograph is to demonstrate the state of the work throughout various stages of the assignment.

Time

The following timings are provided to support centre planning.

The recommended time allocated for the completion of the tasks and production of evidence for this assessment is 16 hours. Suggested timings for completion of specific tasks are outlined below.

- Task 1 – 5 hours
- Task 2 – 8 hours
- Task 3 – 3 hours

Resources

Candidates must have access to a suitable range of resources to carry out the tasks and, where appropriate, to have the opportunity to choose materials demonstrating the ability to select from a range of appropriate materials.

The candidate should have a range of the following to select and carry out each task:

- Necessary hand and power tools, test meters (including PAT), network tester and isolation kits
- PPE.
- Manufacturer's instructions must be available

The assessment area must also contain the pre-installed items as detailed in Figure 1 and the circuit schedule below

Circuit No	Rating	Cable csa Live/cpc	Designation	Represented by	Notes (where necessary)
1	32 A	4/1.5	Office sockets	X3 Socket-outlets	No RCD protection
2	16 A	2.5/1.5	Heating system	X1 FCU	
3	6 A	1.5/1.5	Main lights	Luminaire A	
4	6 A	1.5/1.5	Display lights	Luminaire B	
5	6 A	1.5/1.5	Toilet lights	Luminaire C	
6	spare	spare	spare	spare	To accommodate new circuit

This installation may be undertaken on a wall within a workshop or a board having suitable dimensions to accommodate the equipment shown in figures 1 and 2.

For the installation, the following materials and equipment is required to be pre-fixed before the task is carried out

- 6-way distribution board with circuit breakers
- Supply to the distribution board which is, for reasons of safety, RCD protected
- PVC conduit system
- 2 x 1-way surface mounted switches
- 1 x pull cord switch
- 2 x luminaires for luminaires A and B (luminaire B must be capable of dimmer control)
- 1 x maintained emergency luminaire with integral battery pack for luminaire C
- 3-compartment PVC dado trunking with flat 90-degree bend
- 3 x 2-gang switched socket-outlets
- 1 x 13 A switched fused connection unit with indicator lamp
- Mini trunking (MT2 or similar)
- Wall mounted patch cabinet with patch panel and network switch
- Wiring within PVC conduit and trunking to provide the 5 x circuits detailed on the circuit schedule and in compliance with BS 7671

For the installation task, the following will be required

- 2 x adaptable boxes containing three terminals marked L-N-E and an indicator lamp which illuminates when energised. One box should be marked 'boiler' the other marked 'pump'.
- 1 x two-port central heating valve which has been adapted to allow mounting on the wall/board
- Heating control wiring centre
- Smart programmable room thermostat with control unit
- Additional 3-compartment dado trunking with T joint
- 2 x Cat 5e or Cat 6 data outlets
- Cat 5e or Cat 6 data cable

- RJ45 connectors
- Additional mini trunking with flat 90 bend
- 3-core PVC SWA cable and 2 x gland kits
- Metal-clad surface 2-gang 13 A switched socket-outlet
- Surface mounted occupancy switch
- 2 x on/off wireless switches
- 1 x dimmer wireless switch
- 2 x wireless switch receivers; one capable of multi-switch one capable of dimming
- 2 x smart controlled 2-gang 13 A socket-outlets
- Wi-Fi extender
- Broadband router (this can either be 4G Sim router or connected to the centre network to allow internet access)
- Range of flexible cable suitable for connecting heating equipment and cables for connecting switch receivers

It is recommended that the 'smart' equipment is capable of control through the same app.

Task 3 will require a range of 5 x portable electrical appliances/equipment, commonly used in an office, to include at least one from the following

- Class I appliance (such as an electric heater)
- Class II appliance (such as a monitor)
- Class III appliance (such as a telephone with ELV transformer supply)

Tasks

Task 1 - Planning the installation

Resources

- Materials as detailed within the task specification above
- Hand and power tools - test meters (including PAT), network tester and isolation kits

The purpose of this task is for the candidate to research and select the correct materials and products necessary to fulfil the client's specification. The candidate must also demonstrate the ability to undertake the full design procedure for a circuit to include the necessary calculations to select conductor for current carrying capacity and voltage drop.

Candidates must

- produce a materials and product list giving reasons for their choices. Product relates to the specialist technologies required for this installation
- produce a circuit design schedule for the new socket-outlet circuit. Candidates should assume the actual length of circuit to be 27 m, clipped directly to a masonry surface in an ambient temperature of 25 °C
- produce a risk assessment in relation to the removal of RCD protection as Regulation 411.3.3 in BS 7671

Conditions of assessment:

- The time allocated for this task is 5 hours
- Candidates must carry out the task on their own, under controlled conditions

What must be produced for marking that marks will be awarded for:

- Materials and product list with notes next to each item giving detailed reasons why this equipment is suitable
- Circuit design schedule showing all calculations
- Risk assessment in accordance with regulation 411.3.3 of BS 7671. To include assessment of Client's equipment, users, user training, use restrictions

Templates for the materials and product list and risk assessment have been included within the assignment resource/answer pack

Additional evidence of candidate performance that must be captured for marking that will get marks awarded for:

- Assessors notes of the quality, consistency and accuracy of the research work, including details of any assistance provided

Task 2 – Installation and commissioning

Resources

- Materials as detailed within the task specification above
- Hand and power tools - test meters (including PAT), network tester and isolation kits

Evidence for this task must support the installation and commissioning of the installation including handover. Photographic evidence must show clear progression of the candidate's work and must therefore be taken at one-hour stages of the work throughout this task. The focus of the photo should be on the quality of the installed product and not the candidate. Adjacent to the work and shown in any photograph should be a notice displaying the candidates name and the time of the photo, i.e. 1 hour, 2 hours etc.

Candidates must

- Decommission the existing switching arrangements including a statement of how these items will be disposed of
- Carry out the installation work as detailed in the client's schedule and figure 2
- Carry out all necessary inspection, testing and commissioning as required by BS 7671 and manufacturer's documentation
- Install and configure all necessary software, firmware and hardware in accordance with manufacturer's information.
- Produce a basic Operation and Maintenance (O&M) manual for the installed electrical equipment
- Handover installation to the client, demonstrating how all the equipment functions

Candidates must seek permission from the client (the assessor) to securely isolate each discreet section of the installation to be worked on during this task. As the building is occupied by the client and their employees during this work, disruption to power supplies must be kept to a minimum. A time can be agreed to isolate the whole installation to facilitate commissioning.

Conditions of assessment:

- The time allocated for this task is 8 hours
- Candidates must carry out the task on their own, under controlled conditions
- Candidate must demonstrate safe isolation procedures on discreet sections of the installation being worked on during task 2 as if the simulated building was occupied. Assessors should ensure the entire installation is securely isolated for reasons of safety, but the candidate must work on the assumption the installation is Live

What must be produced for marking that marks will be awarded for:

- Certification and schedules
- Basic O&M Manual to include all manufacturer's information and basic instructions that the client would find useful not included in manufacturer's data
- Statement relating to the safe, sustainable and legal disposal of equipment

Additional evidence of candidate performance that must be captured for marking that candidate will be awarded marks for:

- Assessor observations

- Decommissioning and safe isolation
- Installation as per client schedule
- Inspection, testing and commissioning
- Handover to the client

To support the comments made within the practical observation form the following photographs should be uploaded as a minimum for each candidate:

- Assessor photographs at various stages of the installation detailing candidate progress against the installation task
- evidence of the installation at one-hour stages showing progression. (photographs should only show the installation wall/board and not the candidate)
- photographs of the completed installation and equipment
- photographs showing the inside of the distribution board and SWA termination

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Task 3 – Carrying out maintenance

Resources

- Materials as detailed within the task specification above
- Hand and power tools - test meters (including PAT), network tester and isolation kits

Candidates must:

- Carry out in-service inspection and testing on a range of 5 items of electrical and electronic equipment belonging to the client and provided by the assessor
NB - No previous records exist for the equipment; therefore, all documentation requires completion for the equipment as detailed in the IET Code of Practice for In-service Inspection and Testing of Electrical Equipment (IET CoP ISITEE).

Conditions of assessment:

- The time allocated for this task is 3 hours
- Candidates must carry out the task on their own, under controlled conditions

What must be produced for marking and marks will be awarded for:

- Documentation as required by IET CoP ISITEE

Additional evidence of candidate performance that must be captured for marking:

- Assessor observation of inspection and testing
- Photograph of each item of equipment under test (any test within the range). This is to record the equipment under test and must align with the equipment register

Centre guidance

Guidance provided in this document supports the administration of this project.

The following documents, available on the City & Guilds website, provide essential generic guidance for centres delivering Technical qualifications and **must** be referred to alongside this guidance:

- ***T level technical qualifications – marking***
- ***T level technical qualifications – moderation*** (updated annually)
- ***T level technical qualifications – teaching, learning and assessment***

This synoptic assessment is designed to require the candidate to make use of their core knowledge, understanding and the practical skills they have built up over the course of their learning to tackle tasks/problems/challenges.

This approach to assessment emphasises to candidates the importance and applicability of the full range of their learning to practice in their industry area and supports them in learning to take responsibility for transferring their knowledge, understanding and skills to the practical situation, fostering independence, autonomy and confidence.

Candidates are provided with an assignment brief. They then have to draw on their knowledge and skills and independently select the correct processes, tools, equipment, materials and approaches to take, to complete the brief.

During the learning programme, it is expected that tutors will have taken the opportunity to set shorter, formative tasks that allow candidates to be supported to independently use the learning they have so far covered, drawing this together in a similar way, so they are familiar with the format, conditions and expectations of the synoptic assessment.

Candidates should be made aware during learning what the assessment themes are and how they are implemented in marking the assignment, so they will understand the level of performance that will achieve them high marks.

Candidates should not be entered for the assessment until the end of the course of learning for the qualification, so they are in a position to complete the assignment successfully.

Health and safety

Candidates must not be entered for assessment without being clear of the importance of working safely and having attended sufficient practical training to be able to work safely. The assessor must immediately stop an assessment if a candidate works unsafely. At the discretion of the assessor, depending on the severity of the incident, the candidate may be given a warning. If they continue to work unsafely, risking the safety of themselves or others however, their assessment must be ended, and they must retake the assessment in a future series after significant further training has taken place.

Compliance with timings

Due to the nature of this assessment, the maximum time allowances provided must be adhered to. They refer directly to assessment time, not any additional setting up or drying times the centre needs to create an appropriate assessment environment.

It is the centre's responsibility to plan sufficient assessment sessions, under the appropriate conditions, within the assignment window, to allow candidates reasonable time to complete the assessment tasks.

Where candidates are required to plan their work, they should have their plans confirmed for appropriateness in relation to the time allocated for each task.

Candidates should be allowed sufficient time to fully demonstrate the range of their skills, however this also needs to be reasonable and practicable. Candidates should be allowed to overrun their planned timings or professional service times (where they exist) in order for evidence of a range of their skills to be captured. If, however, the time required exceeds reasonably set assessment periods, or the tolerance suggested for professional service times, the centre may stop the assessment and base the marking on the evidence up to that point, including the tutor's notes of how far over time the task has taken.

Assessor student ratios

The number of candidates a tutor will be able to observe at one time will vary depending on:

- the complexity of evidence collection for the task
- local conditions e.g. layout of the assessment environment,
- amount of additional support available (e.g. to capture image/ video evidence), staggered starts etc.,
- whether there are any peak times where there is a lot of evidence to collect that will need additional support or any that are quieter.

It is advisable to trial the planned arrangements where possible during formative assessment, reviewing the quality of evidence captured and manageability. It is expected that for straight forward observations, (and unless otherwise specified) no more than six candidates will be observed by a single tutor at one time, and the number will usually be fewer than this maximum. The key factor to consider is the logistics of collecting sufficient evidence.

As far as possible, candidates should not be distracted, or their performance affected by the process of observation and evidence collection.

Observation evidence

Observation notes form part of the candidate's evidence and must capture evidence of student performance during the practical tasks describing how well the activity has been carried out, rather than stating the steps / actions, the candidate has taken. The notes must be very descriptive and focus on the quality of the performance that are notable in relation to the quality indicators in the marking grid. They must provide sufficient, appropriate evidence that can be used by the marker (and moderator) to mark the performance using the marking grid. These descriptions will be used, along with e.g. photographic and video evidence to choose the relevant marking band and mark within the band so that students can be reliably and validly differentiated based on their performance. Observation evidence captured in these forms must give the necessary information to enable the final assessment of the task at a later date. This is to allow a holistic judgement to be carried out after all evidence for the task is available, at which point full consideration of how the student has applied both their skills and their knowledge during the practical can be given.

Identifying what it is about the performances that is different between candidates can clarify the qualities that are important to record. Each candidate is likely to carry out the same steps, so a checklist of this information would not help differentiate between them. However, qualitative comments on how well they do it, and quantitative records of accuracy and tolerances would.

The tutor should refer to the marking grid to ensure appropriate aspects of performance are recorded. These notes will be used for marking and moderation purposes and so must be detailed, accurate and differentiating.

Tutors should ensure that any required additional supporting evidence including e.g. photographs or video can be easily matched to the correct candidate, are clear, well-lit and showing the areas of particular interest in sufficient detail and clarity for assessment (i.e. taken at appropriate points in production, showing accuracy of measurements where appropriate).

If candidates are required to work as a team, each candidate's contribution must be noted separately. The tutor may intervene if any individual candidate's contribution is unclear or to ensure fair access (see below).

Assessor marking and justification is completed on a separate form (CRF) to differentiate this evidence from the judgement, since in some cases the observation form will, in some cases, provide evidence relating to the judgement for more than one assessment theme.

The **Technical qualifications guides on marking and moderation** are essential guidance documents and are available on the City & Guilds website. These provide further information on preparing for assessment, evidence gathering, standardisation, marking and moderation, and must be referred to when planning and carrying out assessment.

Video and photograph evidence in T Level Technical qualifications

The assessment materials for each synoptic assignment identify the minimum candidate and assessor evidence requirements to support marking and moderation. Where ephemeral evidence (e.g. areas of candidate performance that may be hard to capture with photographs and assessor notes alone) plays a significant part of the synoptic practical assessment. If this is the case City & Guilds will prescribe the type/capture where the use of video is necessary for practical assessment components (e.g. specifying exactly which elements of the practical must be videoed, or photographed), and any technical specifications for these forms of evidence e.g. length of videos, maximum file sizes etc will also be supplied. Photographic and video evidence will be submitted along with the written candidate evidence and tutor evidence (PO forms) as described in the additional evidence section of the task

If this is the case then the video evidence must meet these minimum requirements, in order to be considered by moderators:

- As per the guidance in section 2.3.2 of *The Marking and Moderation Guide for Centres*, tutors must ensure that this evidence can be easily matched to the correct candidate and task, is clearly shot, well-lit and shows the areas of particular interest in sufficient detail and clarity for assessment (i.e. filmed at appropriate points in production, showing accuracy of measurements where appropriate).
- The qualitative written evidence provided by tutors must
 - clearly identify the parts of the video that are being referred to, when used as supporting evidence. Using a timecode for this is recommended.
 - include their judgement on the performance being demonstrated
- Section 6.5 of the *Centre Manual* also contains general information about the requirements for video evidence submission, however for Technical qualifications videos must be no longer than 5 minutes long.

Please note that where video evidence is unclear, or does not meet these minimum requirements, moderators will disregard it.

Minimum evidence requirements for marking and moderation

The sections in the assignment:

- **What you must produce for marking**, and

- ***Additional evidence of your performance that must be captured for marking***

These list the minimum requirements of evidence to be submitted for marking and the moderation sample.

Evidence produced during assessment above and beyond this may be submitted, as long as it provides useful information for marking and moderation and has been produced under appropriate conditions.

While technological methods which support the capturing or creating of evidence can be helpful, e.g. pin board style websites for creating mood boards, the final evidence must be converted to a suitable format for marking and moderation which cannot be lost/ deleted or amended after the end of the assessment period (e.g. screen prints, pdf files). Considerations around tracking authenticity and potential loss of material hosted on such platforms during assessment is the centre's responsibility.

Note: Combining candidates' individual pieces of evidence into single files or zip files may make evidence management during internal marking more efficient and will greatly simplify the uploading of the moderation sample.

Where the minimum requirements have not been submitted for the moderation sample by the final moderation deadline, or the quality of evidence is insufficient to make a judgement, the moderation, and therefore any subsequent adjustment, will be based on the evidence that *has* been submitted. **Where this is insufficient to provide a mark on moderation, a mark of zero may be given.**

Preparation of candidates

Candidates should be aware of which aspects of their performance will give them good marks in assessment. This is best carried out through routinely pointing out good or poor performance during the learning period, and through formative assessment.

During the learning programme, direct tutor instruction in how to approach tasks through modelling, support, guidance and feedback are critical. However, gradual removal of this support is necessary in preparation for summative assessment. This supported approach is not valid for summative assessment.

The purpose of summative assessment is to confirm the standard the candidate has reached as a result of participating in the learning process. Candidates should be encouraged to do the best they can and be made aware of the difference between these summative assessments and any formative assessments they have been subject to. Candidates may not have access to the full marking grids. Refer to the ***T Level Technical qualifications – teaching, learning and assessment*** centre guidance document, available on the City & Guilds website for further information on preparing candidates for Technical qualification assessment.

Guidance on assessment conditions

The assessment conditions that are in place for this synoptic assignment are to:

- ensure the rigour of the assessment process
- provide fairness for candidates
- give confidence in the outcome

They can be thought of as the rules that ensure that all candidates who take an assessment are being treated fairly, equally and in a manner that ensures their result reflects their true ability.

The conditions outlined below relate to this synoptic assignment. These do not affect any formative assessment work that takes place, although it is advised that candidates are prepared for the conditions they will need to work under during summative assessment.

The evidence for the tasks that make up this synoptic assignment must be completed under the specified conditions. This is to ensure authenticity and prevent malpractice as well as to assess and record candidate performance for assessment in the practical tasks. Any aspect that may be undertaken in unsupervised conditions is specified. It is the centre's responsibility to ensure that local administration and oversight gives the tutor sufficient confidence to be able to confirm the authenticity of the candidate's work.

Security and authentication of candidate work

Candidate evidence must be kept secure to prevent unsupervised access by the candidate or others. Where evidence is produced over a number of sessions, the tutor must ensure learners and others cannot access the evidence without supervision. This might include storing written work or artefacts in locked cupboards and collecting memory sticks of evidence produced electronically at the end of each session.

Candidates are required to sign declarations of authenticity, as is the tutor. The relevant form is included in this assignment pack and must be signed after the production of all evidence.

Where the candidate or tutor is unable to or does not confirm authenticity through signing the declaration form, the work will not be accepted at moderation and a mark of zero will be given. If any question of authenticity arises e.g. at moderation, the centre may be contacted for justification of authentication.

Accessibility and fairness

Where a candidate has special requirements, tutors should refer to the *Access arrangements and reasonable adjustments* section of the City & Guilds website.

Tutors can support access where necessary by providing clarification to any candidate on the requirements or timings of any aspect of this synoptic assignment. Tutors should not provide more guidance than the candidate needs as this may impact on the candidate's grade, see the guidance and feedback section below.

All candidates must be provided with an environment, time frame and resources that allows them reasonable access to the full range of marks available.

Where candidates have worked in groups to complete one or more tasks for this synoptic assessment, the tutor must ensure that no candidate is disadvantaged as a result of the performance of any other team member. If a team member is distracting or preventing another team member from fully demonstrating their skills or knowledge, the tutor must intervene.

Guidance and feedback

To support centre file management, tutors may specify a suitable file format and referencing format for evidence (unless otherwise specified e.g. if file naming is an assessment point for the assignment). Guidance must only support access to the assignment brief and must not provide feedback for improvement. The level and frequency of clarification & guidance must be

- recorded fully on the candidate record form (CRF)
- taken into account along with the candidate's final evidence during marking
- made available for moderation

Tutors must not provide feedback on the quality of the performance or how the quality of evidence can be improved. This would be classed as malpractice. However, this does not apply if the tutor asks questions as part of the assessment process. Such requirements will be specifically stated within task centre guidance.

Tutors should however provide general reminders to candidates throughout the assessment period to check their work thoroughly before submitting it, and to be sure that they are happy with their final evidence as it may not be worked on further after submission.

Candidates can rework any evidence that has been produced for this synoptic assignment during the time allowed. However, this must be as a result of their own review and identification of weaknesses and not as a result of tutor feedback. Once the evidence has been submitted for assessment, no further amendments to evidence can be made.

Tutors should check and be aware of the candidates' plans and designs to ensure management of time and resources is appropriate, and so any allowed intervention can take place at an appropriate time.

Tutors should ensure that candidates' plans for completion of the tasks distribute the time available appropriately and may guide candidates on where they should be up to at any point in a general way. Any excessive time taken for any task should be recorded and should be taken into account during marking if appropriate.

It is up to the marker to decide if the guidance the candidate has required suggests they are lacking in any performance outcome, the severity of the issue, and how to award marks on the basis of this full range of evidence. The marker must record where and how guidance has had an impact on the marks given, so this is available should queries arise at moderation or appeal.

What is, and is not, an appropriate level of guidance

- A tutor should intervene with caution if a candidate has taken a course of action that will result in them not being able to submit the full range of evidence for assessment. However, this should only take place once the tutor has prompted the candidate to check that they have covered all the requirements. Where the tutor has to be explicit as to what the issue is, this is likely to demonstrate a lack of understanding on the part of the candidate rather than a simple error, and full details should be recorded on the CRF
- The tutor should not provide guidance if the candidate is thought to be able to correct the issue without it, and a prompt would suffice. In other words, only the minimum support the candidate actually needs should be given, since the more tutor guidance provided, the less of the candidate's own performance is being demonstrated and therefore the larger the impact on the marks awarded
- A tutor must not provide guidance that the candidate's work is not at the required standard or how to improve their work. In this way, candidates are given the chance to identify and correct any errors on their own, providing valid evidence of knowledge and skills that will be credited during marking
- The tutor must not produce any templates, pro-formas, work logs etc unless instructed to in the assignment guidance. Where instructed to do so, these materials must be produced as specified and contain no additional guidance. Templates provided, as part of the assignment should be used as provided, and not adapted

All specific prompts and details of the nature of any further guidance must be recorded on the relevant form and reviewed during marking and moderation.

Guidance on marking

Please refer to the ***T Level Technical qualifications – marking, and - moderation*** centre guidance documents for further information on gathering evidence suitable for marking and moderation, and on using the marking grid and forms.

The candidate record form (CRF) is used to record:

- Details of any guidance or the level of prompting the candidate has received during the assessment period
- Rough notes bringing together relevant evidence from across tasks during marking
- Summary justifications when holistically coming to an overall judgement of the mark for each performance objective and overall

The practical observation form (PO) is used to record:

- Descriptive information and evidence of candidate performance during an observation

SAMPLE

Marking guidance

Carrying out marking using assessment themes

The process of marking each assessment theme is iterative and should follow the process below which will become more spontaneous over time as the descriptors become familiar. It is recommended to refer back to these frequently however, so the standard does not unintentionally drift over the marking period.

The indicative content gives an indication of the expected content parameters the responses are likely to cover, and which aspects of the evidence are relevant. It is not exhaustive, and an acceptable answer may concentrate more on depth rather than fully cover the range indicated or deviate into relevant topics not listed.

The specific task evidence listed within the assessor guide and marking grid must be used to make a judgement on performance in relation the specific assessment theme.

The assessment tasks guide the production of valid evidence under appropriate conditions for assessment. Candidate evidence from a range of tasks may contribute to the marking of a single assessment theme, or from a single task to more than one assessment theme. In this case different aspects of the evidence are being considered for each theme and need to be judged against the marking descriptors specified in the assessment themes independently of each other.

In some cases, the quality indicators looked for in the judgement may naturally be more strongly evidenced in one piece of evidence than another. For instance, more formulaic/prescriptive forms of evidence may not be able to generate evidence of higher levels of performance, so this evidence would need to be looked for in the other forms of evidence. This means that where a range of evidence is to be assessed, it should be treated as a single package of evidence for the purposes of marking even if generated through different tasks.

Timing of marking

As some assessment themes require the triangulation of a number of pieces of evidence, marking cannot take place until after all of these are available. This does not however mean that all marking needs to take place after all candidates have completed the whole assessment.

Also, it is possible to begin recording the notes that will justify the marking for some assessment themes as evidence is produced, with the final mark only being decided once the complete array of evidence is available. This is particularly the case if later evidence is more confirmatory, and the earlier evidence is sufficiently informative for the qualities being assessed to make this a useful exercise.

Through planning, it should be possible to identify any evidence that can start being reviewed earlier, and the assessment themes which could be scheduled for earlier completion of marking e.g. while observation evidence is fresh in the mind should this be helpful. Care must of course be taken to ensure any evidence required by candidates to progress with another task are available for that task to take place. In addition, it is recommended that a sense check across marking for each assessment theme, and across assessors, is carried out at the end to ensure marking has not drifted during the period. This may take the form of comparing candidate work to check that the ranking of quality of evidence matches the ranking of marks – where there are discrepancies marking should be checked for accuracy.

Process for each assessment theme:

- Select the range of evidence relevant for making the judgement – this is indicated in the mark scheme for each assessment theme.

- Scan / read the candidate evidence, evidence captured by the assessor and the indicative content & band descriptors in the mark scheme.
- Make an initial assessment of the required evidence as a whole, considering each band in turn to make a balanced judgement of the best band to use it as a starting point.
- Read the evidence and review it against the band descriptor in more detail, deciding if the response is securely sitting within the band; i.e. all quality characteristics described by the band descriptor are seen, and strongly meets the level of performance described by the descriptor holistically (i.e. across the range of relevant evidence).
 - Check the descriptor for the level above
 - If the evidence clearly shows some of the characteristics of the higher band, select a suitable mark at the bottom of that band
 - If *not* showing characteristics of the higher band revert to the original band, select a mark at the higher end of that mark range

If the response is not securely in the band, but *is partially* showing the characteristics of the band,

- check the descriptor of the level below.
- decide on a suitable mark either at the bottom of the original band as some characteristics shown, or top of the lower band if it better describes the quality of the characteristics being shown.

If the response is largely meeting the band, with only a few concerns, and is not showing characteristics aligning with the higher or lower bands, the appropriate mark is likely to be in the middle range.

If there is no alignment with the descriptor, reassess the starting band, and begin again.

- Based on the level of alignment with the descriptor, confirm the final mark within the band, bearing in mind that the available marks form an *evenly distributed scale*:
 - If the quality of response *fully* aligns with the performance described by the descriptor – assign a high mark within the band
 - If the quality of the response *partially* aligns with the performance described by the descriptor – assign a low to medium mark within the band
 - Consider the quality compared to a range of similar responses (e.g. relevant annotated training material exemplars, responses reviewed during standardisation, and through experience) choose a mark on the point on the scale that would give an appropriate ranking for the assessed piece of evidence in relation to this information and in comparison with that of the rest of the cohort for that assessment theme.

Marking grid

There is a marking grid for each assessment theme that must be assessed as part of this occupational specialism assessment.

Assessment theme - Health and safety

<p>Note: where there is insufficient evidence to award a mark, a zero mark may be given</p>	<p>Band 1 descriptor</p>	<p>Band 2 descriptor</p>	<p>Band 3 descriptor</p>	<p>Total marks per assessment theme</p>
<p>Indicative content</p>	<p>Typical knowledge, understanding and skills: Identification of main hazards which include major danger of death or major injury hazards. Analysis of risk and appropriate mitigation against hazards for planned tasks. Knowledge and understanding of minor injury or delay hazards and provide appropriate mitigation for such risks. Demonstration of the ability to correctly prepare tools and materials lists for the proposed task. Assessment of risk as part of commissioning and installation. Safe isolation procedures completed accurately and safely (Failure to complete safe isolation as specified below leading to an unsafe situation the assessment will be stopped immediately).</p> <ul style="list-style-type: none"> • Obtain permission to start work • Prove that the approved voltage indicator is functioning correctly • Identify the source(s) of supply using an approved voltage indicator • Isolate the supply, lock off and retain the key • Prove the system/equipment is DEAD using an approved voltage indicator • Prove that the approved voltage indicator is functioning correctly • Put up warning signs to tell other people that the electrical installation has been isolated • Once the system/equipment is proved DEAD, work can begin 			<p>12</p>
<p>Marks per band</p>	<p>1-4</p>	<p>5-8</p>	<p>9-12</p>	<p>12</p>

	<p>Risk mitigation methods are limited. Likelihood against probability has been attempted but lacks reasoning.</p> <p>Health and safety is followed during preparation and throughout tasks so that all work is completed safely but when working some low risk hazards were missed.</p>	<p>Risk mitigation methods have been identified for some of the potential risks, but not all. Consideration is given to potential for harm and probability factors.</p> <p>Health and safety is followed during preparation and throughout tasks and all work completed safely</p>	<p>Risk mitigation methods are detailed and have been clearly identified for all potential risks. Potential for harm and probability factors have been identified throughout.</p> <p>Health and safety is followed during preparation and throughout tasks and all work completed safely. Risks and hazards that occur during the tasks are correctly mitigated against as they arise.</p>	
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Guidance for markers

Evidence from Task 1, Task 2 and Task 3 should be used to assess performance against this assessment theme.

Task 1

Risk assessment

Materials and product list

Task 2

Statement relating to safe disposal

Assessor observation

- Installation work - hardware/software
- Inspection and testing

Task 3

Assessor observation

- Inspection and testing

Additional supporting evidence

- Photographic and/or video evidence requirements are stated in the specific task guidance for each task within this assessor pack

SAMPLE

Assessment theme – Design and planning

<p>Note: where there is insufficient evidence to award a mark, a zero mark may be given</p>	<p>Band 1 descriptor</p>	<p>Band 2 descriptor</p>	<p>Band 3 descriptor</p>	<p>Total marks per sub assessment themes.</p>	<p>Total marks for assessment theme</p>
<p>Indicative document</p>	<p>Typical knowledge, understanding and skills: Taking measurements from an allocated space/ work area. Using information gathered in the development of diagrams and drawings. Detailed method statement of how the task will be carried out in a safe and logical manor with reasoning to support methods given. Choices made in response to the assignment brief and tasks and justifications with reasoning. Correct selection of components and tools, materials and equipment for different aspects of the assignment. Consideration of the type, size and quantity to complete the task in a timely manner and to ensure the highest quality of finish which shows no evidence of damage to systems.</p>				
<p>Marks per band</p>	<p>1-2</p>	<p>3-4</p>	<p>5-6</p>	<p>6</p>	<p>15</p>
<p>Documents</p>	<p>Documents have limited detail and mainly bullet points.</p> <p>Documents contains some limited detail in how to carry out tasks logical sequencing is limited.</p>	<p>Documents clear and set out in a logical order.</p> <p>Documents provide some details of how to perform tasks to correct standards but sequencing lacks clarity.</p>	<p>Documents thorough and detailed and set out in a logical order.</p> <p>Documents easy to follow and accurate in process. It provides clear detail of how to perform tasks with good sequencing.</p>		

	<p>Any justifications are given in isolation and do not clearly link to tasks.</p> <p>Documentation bullet pointed with a number of key components or tools and equipment to perform the tasks.</p> <p>Minor errors in terminology.</p> <p>Documentation has insufficient and inaccurate descriptions.</p> <p>Little attempt to quantify materials required to complete tasks.</p>	<p>Justifications and reasoning are given to some elements in documents, but not all.</p> <p>Documentation clear and logical and identifies most of the tools and equipment required to perform the tasks.</p> <p>Terminology is used correctly throughout.</p> <p>Documentation considers quantities of both materials and equipment required to perform tasks to industry standards.</p>	<p>Clear justifications and reasoning are provided throughout.</p> <p>Documentation detailed and includes all key components, tools and equipment required to perform the tasks.</p> <p>Full consideration of language, terminology, audience etc throughout</p> <p>Documentation considers quantities of both materials and equipment, and protection of customer property, including safety and PPE.</p>		
	1-3	4-6	7-9	9	
Technical information	<p>Diagrams complete but with some inaccuracies that do not meet the installation specification.</p> <p>Calculations are accurate but there is minimal working shown to evidence that all factors have been considered. There are minimal units specified and</p>	<p>Diagrams meets most of the design specification, with only some components out of tolerance.</p> <p>Calculations are accurate but there are gaps in workings that does not clearly show that all factors have been considered. Some units are not</p>	<p>Diagrams accurate and meets the installation specification.</p> <p>Calculations are accurate with all factors considered and working out shown in detail. All units are nominated, and calculations are presented to a uniformed number of decimal places.</p>		

	presentation of work is not clear.	specified. Presentation of work is mostly clear.	Presentation of work is fully clear.		
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Guidance for markers

Evidence from Task 1 must be used to assess performance against the assessment theme.

Task 1

Calculations

Circuit design schedule

Materials and product list

Assessor observation

- Research work

SAMPLE

Assessment theme – Systems and components

Note: where there is insufficient evidence to award a mark, a zero mark may be given	Band 1 descriptor	Band 2 descriptor	Band 3 descriptor	Total marks per sub assessment themes.	Total marks for assessment theme
Indicative content	<p>Typical knowledge, understanding and skills: Selection and correct use of components and tools, equipment and materials to meet the requirements of the assignment brief and tasks.</p> <p>Correct use of tools, equipment and small hand tools for the relevant aspects of the task.</p> <p>Completion of the installation of wiring and components following manufacturer’s guidance and relevant regulations as appropriate.</p> <p>Completion of installation and maintenance tasks safely and with consideration to customer property.</p>				
Marks per band	1-5	6-10	11-15	15	24
Hardware installation	Installation lacks clarity and does not follow logical sequencing. Component selection and installation is mostly appropriate but there are some errors when completing processes.	Installation is to a good standard and does follow some logic in process. Component selection is mostly appropriate. Installation mostly meets plan with minimal errors. Selection of tools appropriate throughout. Use of tools is	Installation is to industry standards and is completed in a timely manner. Component selection is appropriate and clearly links to the quality of finished installation. Highly competent in installation skills which is		

	<p>Selection and use of tools is mostly appropriate but requires reassurance.</p> <p>Minimal reference made to manufacturer's instructions during the installation.</p> <p>Consideration of some implications of sequence for disposal minimising damage to parts that could be recycled.</p> <p>Some removed materials and equipment suitably designated and categorised for disposal as required.</p> <p>Measurement of wiring and associated components for installation may have inaccuracies that has results in inefficiencies and unnecessary waste of materials.</p>	<p>good but some tasks require numerous attempts.</p> <p>Reference made to manufacturer's instructions during the installation.</p> <p>Consideration of implications of sequence for dismantling minimising damage to parts that could be recycled.</p> <p>All removed materials and equipment suitably designated and categorised for disposal as required.</p> <p>Measurement wiring and associated components is to a sound standard with clear attempts to meet industry levels, resulting in an install that has few errors from the proposed installation plan.</p>	<p>demonstrated in the quality of the finished installation.</p> <p>Excellent use of tools resulting in a high quality installation.</p> <p>Reference made to manufacturer's instructions at all appropriate stages during the installation.</p> <p>Measurement of wiring and associated component installation is accurate and meets the design specification and is within tolerance without undue waste.</p>		
Marks per band	1-3	4-6	7-9	9	
Software installation	Installation not well planned and does not follow logical sequencing.	Installation to a good standard and follows some logic in process.	Installation to industry standards and completed		

	<p>Minimal reference made to manufacturer's instructions during installation.</p> <p>Consideration of some implications of sequence of installation.</p>	<p>Reference made to manufacturer's instructions during installation and application of software.</p> <p>Consideration of implications of sequence of installation and adapting procedure and actions accordingly during installation.</p>	<p>confidently and in a timely manner.</p> <p>Reference was made to manufacturer's instructions at all appropriate stages during the installation and application of software.</p> <p>Consideration of sequence of installation upfront, to effectively and efficiently use time available, checks system requirements and full compatibility upfront.</p>		
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Guidance for markers

Evidence from Task 1, Task 2 and Task 3 must be used to assess performance against the assessment theme.

Task 1

Circuit design

Assessor observation

- Research work

Task 2

Assessor observation

- Installation work - hardware/software
- Commissioning

Task 3

Assessor observation

- Inspection and testing

Additional supporting evidence

Photographic and/or video evidence requirements are stated in the specific task guidance for each task within this assessor pack

SAMPLE

Assessment theme – Reports and information

Note: where there is insufficient evidence to award a mark, a zero mark may be given	Band 1 descriptor	Band 2 descriptor	Band 3 descriptor	Total marks for assessment theme
Indicative content	<p>Typical knowledge, understanding and skills: Documentation/recording with consideration of customer requirements and completing form templates correctly. O&M manual detail fully in relation to the requirements of the various task aspects as detailed in the assignment brief. Complete and detailed report/checklists for the following activities</p> <ul style="list-style-type: none"> • Decommission existing switching arrangements including a statement of how these items will be disposed of • inspection, testing and commissioning as required by BS 7671 and manufacturer’s documentation <p>Information and terminology accurate throughout and presented clearly.</p>			
Marks per band	1-2	3-4	5-6	6
Reporting and information	<p>Documentation completed with the minimum detail required with little or no evidence of checking for accuracy and consistency.</p> <p>Information recorded but wording, symbols, abbreviations etc used inconsistently and with limited consideration for accuracy, legibility, audience etc</p> <p>Documentation/reports include high level detail that would be required by client. May not be fully considered from client</p>	<p>High level of accuracy provided in reports and written detail consistently ensuring and checking for accuracies with reference made to manufacturers’ instructions and regulations.</p> <p>Consideration of language, abbreviations and audience and throughout documentation.</p> <p>Documentation/reports comprehensive in coverage but would benefit from better planning</p>	<p>High level of accuracy provided in reports and written detail consistently ensuring and checking for accuracies with reference made to manufacturers’ instructions and regulations.</p> <p>Full consideration of language, abbreviations audience etc and ensuring documentation is completed in line with recording and industry standards.</p>	

	<p>perspective or laid out/detailed enough for a user to interpret.</p> <p>Information in documentation/reports covers key equipment but does not consider the full requirements of the assignment brief.</p>	<p>and clarity of presentation / ordering of information – Clear effort to consider client perspective.</p> <p>Information in documentation/reports covers all equipment within installation in full.</p>	<p>Information in documentation/reports is clear and logically presented with all elements required by the client with consideration beyond basic instructions that may be required. Fully considers client perspective in relation to clarity of information – level of detail provided, terminology etc.</p> <p>Documentation/reports covers all equipment within installation in full, in depth in line with industry best practice.</p>	
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Guidance for markers

Evidence from Task 1, Task 2, and task 3 must be used to assess performance against the assessment theme.

Task 1

Materials and product list
 Circuit design schedule
 Assessor observation

- Research work

Task 2

Certification and schedules
 O&M manual and instructions

Task 3

Documentation as required by IET CoP ISITEE

Assessment theme – Inspecting and testing of systems and components

Note: where there is insufficient evidence to award a mark, a zero mark may be given	Band 1 descriptor	Band 2 descriptor	Band 3 descriptor	Total marks for assessment theme
Indicative content	Typical knowledge, understanding and skills: Completion of required tests and checks as part of system installation and commissioning. Correct selection and use of testing equipment. Interpretation and analysis of testing results. Adaptation of process in relation to test outcomes where necessary.			
Marks per band	1-4	5-8	9-12	12
Inspecting and testing of systems and components	Inspection and testing for installation lacks clarity and does not follow logical sequencing. Component selection and installation is mostly appropriate but some gaps in completing processes. Selection and use of tools is mostly appropriate but requires reassurance. Minimal reference made to manufacturer's instructions during the installation.	Inspection and testing is to a good standard and does follow some logic in process. Component selection is appropriate. Installation mostly meets the plan with minor errors. Selection of tools appropriate throughout. Use of tools is good but some tasks require numerous attempts. Reference made to manufacturer's instructions during the installation.	Inspection and testing is to industry standards and is completed in a timely manner. Component selection is accurate. Can apply technical skills to practical tasks and procedures to an exemplary standard. Use of tools is excellent resulting in a high-quality installation. Reference made to manufacturer's instructions	

			at all appropriate stages during the installation.	
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Guidance for markers

Evidence from Task 2 must be used to assess performance against this assessment theme.

Task 2

Certification and schedules

Assessor observation

- Installation work - hardware/software
- Inspection and testing

Additional supporting evidence

Photographic and/or video evidence requirements are stated in the specific task guidance for each task within this assessor pack

SAMPLE

Assessment theme – Handover and communication

Note: where there is insufficient evidence to award a mark, a zero mark may be given	Band 1 descriptor	Band 2 descriptor	Band 3 descriptor	Total marks for assessment theme
Indicative content	Typical knowledge, understanding and skills: Clear and detailed handover to customer. Operating principles and setting of equipment. Provision of clear and informative explanations of equipment use. Handover of installation to the client includes demonstrating how all the equipment functions, operating principles and maintenance requirements and when to ask for professional assistance.			
Marks per band	1-3	4-6	7-9	9

<p>Handover and Communication</p>	<p>Technical language minimal and explanations on reports provide minimal detail.</p> <p>May have missing detail or inaccurate reporting.</p> <p>Interaction with customer demonstrates basic customer care skills and does not confirm customer understanding.</p> <p>Demonstration of system provides basic functions; some information unclear resulting in the customer having to ask questions.</p> <p>Discussion with customer brief and some questions/statements not relevant to the task.</p>	<p>Reports contain technical language and reasoned rectification solutions.</p> <p>Minimal, accurate detail in all aspects.</p> <p>Interaction with customer demonstrates some good customer care skills, through use of appropriate language and checking customer understanding.</p> <p>Demonstration of system clear and provides all functions of system.</p> <p>Discussion with customer mostly clear and questions/statements relevant to the task.</p>	<p>Consistent use of industry terminology appropriately in both written and verbal contexts.</p> <p>Sufficient and accurate detail in all aspects.</p> <p>Interaction with customer demonstrates strong customer care skill, adapting to type of customer and through using appropriate language and checking the customer understanding.</p> <p>Demonstration of system thorough and provides all functions and information. Candidate proactively checks and confirms customer understanding.</p> <p>Discussion with customer clear and direct, all questions/statements relevant to the task.</p>	
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Guidance for markers

Evidence from Task 2 and Task 3 must be used to assess performance against this assessment theme.

Task 2

O&M manual

Assessor observation

- Handover to client

Task 3

Assessor observation

- Inspection and testing
- Fault diagnosis

SAMPLE

Assessment theme – Working with faults

<p>Note: where there is insufficient evidence to award a mark, a zero mark may be given</p>	<p>Band 1 descriptor</p>	<p>Band 2 descriptor</p>	<p>Band 3 descriptor</p>	<p>Total marks for assessment theme</p>
<p>Indicative content</p>	<p>Typical knowledge, understanding and skills: Fault finding tests to ensure correct diagnosis of faults. Techniques follow systematic and logical approach to fault finding. Correct selection and use of testing tools and equipment in the identification and resolution of faults.</p>			
<p>Marks per band</p>	<p>1-4</p>	<p>5-8</p>	<p>9-12</p>	<p>12</p>
<p>Working with faults</p>	<p>Fault-finding techniques carried out but limited and show only basic knowledge of fault-finding techniques.</p> <p>Hesitancy with data and uncertainty with validity of data.</p> <p>Investigation and analysis of fault does not always follow a logical sequence</p> <p>Minimal reference made to manufacturer's instructions.</p>	<p>Faults diagnosed and rectified following a systematic if hesitant approach.</p> <p>Use of research and investigation techniques to identify causes of problems and rectify issues both collaboratively and independently.</p> <p>Investigation and analysis of fault was clear and followed some logic</p> <p>Reference made to manufacturer's instructions at some points during the fault diagnosis.</p>	<p>Confident diagnosis of complex task/faults, use of testing procedures and choice of tests needed.</p> <p>Independent research and identification of causes of problems, solutions and rectification of with ease.</p> <p>Investigation and analysis of fault detailed and logical.</p> <p>Reference made to manufacturer's</p>	

			instructions at all appropriate stages during fault diagnosis.	
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Guidance for markers

Evidence from Task 3 must be used to assess performance against this assessment theme.

Task 3

Assessor observation

- Inspection and testing
- Fault diagnosis

Additional supporting evidence

Photographic and/or video evidence requirements are stated in the specific task guidance for each task within this assessor pack

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Declaration of authenticity

Assessment ID	Qualification number
Candidate name	Candidate number
Centre name	Centre number

Additional Support

Has the candidate received any additional support in the production of this work?

No **Yes** (Please tick appropriate)

If yes, give details below (and on a separate sheet if necessary).

--

Candidate:

I confirm that all work submitted is my own, and that I have acknowledged all sources I have used.

Candidate signature	Date

Tutor:

I confirm that all work was conducted under conditions designed to assure the authenticity of the candidate's work, and am satisfied that, to the best of my knowledge, the work produced is solely that of the candidate.

Tutor signature	Date

Note: Where the candidate and/or tutor is unable to or does not confirm authenticity through signing this declaration form, the work will be returned to the centre and this will delay the moderation process. If any question of authenticity arises, the tutor may be contacted for justification of authentication

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