



T Level Technical Qualification in Maintenance, Installation and Repair for Engineering and Manufacturing

**Employer-Set Project
(8712-033)**

Sample Tasks

**First teaching from September 2022
Version 1.0**

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Task 1 – Research

You have been asked to help respond to the project that the NHS Trust has allocated. You need to research different types of DRUPS manufacturers in line with the specifications provided by the client.

With reference to the project brief, you are to conduct research into **two** different types of DRUPS to determine:

- estimated cost of installations
- estimated cost of DRUPS systems
- laws and regulations that apply to the installation and maintenance of DRUPS on site
- tolerances, set points, operating parameters and calibration requirements once installation has been completed
- risk assessments to be adhered to whilst installing equipment.

When conducting your research consider:

- client requirements relating to the DRUPS being used as a backup power system with regards to content
- environmental and noise factors when considering the installation and ongoing use of the equipment
- health and safety regulations that impact on the system design, installation and testing
- risk assessments.

You must collate the findings from your research of the two different types of DRUPS with the client's design specification into a technical brief capturing all requirements for a DRUPS.

The technical brief will typically be 1500 words (not including references). The document can include sourced pictures, engineering drawings, schematics, images, specifications, and CAD diagrams and sketches.

You must also provide any notes and calculations made as part of your research, including details of your research approach and how you planned your research.

Timing of assessment

- You will have **three hours** to carry out the research and complete the technical brief.

Conditions of assessment

- Your technical brief should be completed working alone under supervised conditions.
- You must not share or discuss your work with other candidates.
- You will have access to the Internet to conduct your research.
- Assessment evidence must be handed in at the end of each session for secure storage which cannot be accessed.

What you must submit on completion of this task

- Technical brief (typically 1500 words) hard copy or file saved securely (e.g. in a secure online location or on memory stick to be handed in).
- Research notes.
- List of references/sources.

Additional evidence of your performance that will be captured for marking

- N/A

Marks available

- 15

Task 2 – Report

Following the completion of the investigation into different DRUPS and requirements, the NHS Trust has reviewed the suggestions made. To progress with the response to the tender you now need to help identify the equipment and technology to be used within your preferred DRUPS installation (i.e. **one** of the two you have previously researched).

You have been asked to draft a report, detailing appropriate components to be selected and used, along with installation drawings of your preferred DRUPS on site.

The report should clearly cover the following points:

- installation requirements including the access to site and installing the system safely without inconvenience to the hospital including risk assessments
- advantages and limitations of system selected
- technical and commercial justification for selected equipment
- health and safety regulations
- how your preferred DRUPS meets the brief requirements
- how your preferred DRUPS enables preventative maintenance systems and routine maintenance programmes.

Along with the written report your annotated drawings must detail:

- location of parts
- electrical and mechanical connections of components and equipment
- system layout.

The written report will typically be 2000 words.

The drawings will typically be **one** side of A3.

Timing of assessment

- You will have **four hours** to complete your report and installation drawings.

Conditions of assessment

- Your report and drawings should be completed working alone under supervised conditions.
- You must not share or discuss your work with other candidates.
- You will have access to a copy of your response to the previous task (for review purposes only).
- You will **not** have access to the Internet for the completion of this task.
- Your drawings must be completed manually (not using CAD software).
- Assessment evidence must be handed in at the end of each session for secure storage which cannot be accessed.

What you must submit on completion of this task

- Written report (typically 2000 words) – hard copy or file saved securely (e.g. in a secure online location or on memory stick to be handed in).
- Drawings (typically one side of A3).

Additional evidence of your performance that will be captured for marking

- N/A

Marks available

- 24

Task 3 – Plan

You have been asked to contribute to an overall project plan. The project plan is to include the order of work processes to be completed as part of the installation of the DRUPS. You will need to consider in which order the relevant equipment is to be ordered, checked and installed.

Create a planning chart of work including the following considerations:

- purchasing of the equipment
- the order of installation and setting up of components
- the main equipment and tools required for the installation
- commissioning/testing and calibrations on site and off site
- duration and sequence of the project including a critical path
- who will be involved with each process and resources required.

Planning charts can be presented in an industry recognised format of your choice. You may choose to complete your planning chart using digital software, but you do not have to do so.

Provide a supporting statement to justify your planning chart taking into consideration:

- job roles and responsibilities
- health and safety considerations
- specialist tools, equipment and resources – hire and source
- cost considerations and implications.

The planning chart will typically be **one** side of A4.

The supporting statement will typically be 1000 words.

Timing of assessment

- You will have **three hours** to complete your planning chart and supporting statement.

Conditions of assessment

- Your planning chart and supporting statement should be completed working alone under supervised conditions.
- You must not share or discuss your work with other candidates.
- You will have access to software that may be required to create the planning chart (e.g. word processing software, spreadsheets etc.).
- You will have access to copies of your responses to the previous tasks (for review purposes only).
- You will **not** have access to the Internet for the completion of this task.
- Assessment evidence must be handed in at the end of each session for secure storage which cannot be accessed.

What you must submit on completion of this task

- Planning chart (typically one side of A4).
- Supporting statement (typically 1000 words) – copy of file saved securely (e.g. in a secure online location or on memory stick to be handed in).

Additional evidence of your performance that will be captured for marking

- N/A

Marks available

- 18

Task 4 – Present

The installation of the DRUPS at the hospital has now been approved and you are required to report on the process of installation and commissioning the equipment into the correct location within the Trust.

You are to prepare and deliver a presentation which will be shown to the NHS Trust as part of an upcoming meeting - the attendees will have a non-technical engineering background.

You must use digital technology for the presentation.

You must cover:

- technology, and equipment you have selected and justified
- how the DRUPS equipment functions to meet the client requirements
- system commissioning, health and safety considerations for testing and calibration considerations including scheduled maintenance plans and action plan for unplanned breakdowns
- budget estimate costs for design, production and installation
- challenges presented by the brief and how these have been overcome
- how well your proposal addresses the requirements of the brief.

Your assessor will take on the role of a manager from the NHS Trust. They will ask questions relating to your presentation from a client's perspective.

Timing of assessment

- You will have **two hours** to prepare your presentation.
- You will have **30 minutes** to present your findings and respond to questions (typically split with 20 minutes for presenting your findings and ten minutes for responding to questions).

Conditions of assessment

- Your presentation should be developed and delivered working alone under supervised conditions.
- You must not share or discuss your work with other candidates.
- You will have access to copies of your responses to the previous tasks (for review purposes only) as well as any presentation materials/notes (e.g. PowerPoint slides).
- You will have access to digital technology for the presentation of your findings - you can choose the format/program and program features you wish to use (e.g. PowerPoint).
- You will **not** have access to the Internet for the completion of this task.
- Assessment evidence must be handed in at the end of each session for secure storage which cannot be accessed.

What you must submit on completion of this task

- Presentation materials – e.g. slides, handouts etc. hard copy or digital file saved securely (e.g. in a secure online location or on memory stick to be handed in).

Additional evidence of your performance that will be captured for marking

- Video recording of presentation.

Marks available

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