

T Level Technical Qualification in Design and Development for Engineering and Manufacturing

**Employer-Set Project
(8730-035)**

**Task 2
Summer 2024**

Task 2 – Design

The technical brief you worked on in Task 1 has been submitted to the client, Harbour Shipping Limited. You have now been asked to develop your design ideas and prepare drawings and calculations for the new buoy.

Part A

You are to prepare fully annotated sketches (3D, plan, elevation, section and detail) of **at least two** buoy designs. The annotated sketches should use standard engineering conventions and must clearly illustrate the:

- buoy base and anchor mechanism
- materials from which the buoy is to be constructed
- shape, visibility and ergonomic features of the buoy
- full dimensions
- alert system
- tracking system
- renewable power source to be used
- anti-rust and corrosion features.

As part of your design, you must:

- annotate your buoy sketches with working calculations of renewable energy produced against what is required by your alert and tracking system
- include all your assumptions you made when carrying out the calculations.

When preparing your sketches, you will need to use the information provided in the project brief and design specification, as well as a copy of the technical brief that you prepared as part of Task 1.

Part B

Once you have developed the sketches of your buoy designs you should then prepare a final fully dimension scaled CAD drawing of your **one preferred** chosen buoy design along with suitable technology and power requirements. This **must** be appropriately annotated with completed title block.

You must include reflective notes (typically 500 words) on your final CAD drawing, to show how your design ideas have developed during the completion of the task. This should justify how your design effectively meets the requirements of the product design specification and why you have chosen to go with this design.

Timing of assessment

- You will have **eight hours** to complete your sketches, calculations, notes and dimensioned CAD drawing. You will have access to relevant software to complete your CAD drawings.

Conditions of assessment

- Your sketches, CAD design, notes and calculations must 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, with the **exception to access the CAD library**.
- 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

Part A

- **Sketches** for **two** designs (typically two A3 size drawings)
- **Supporting calculations** – hard copy or file saved securely (e.g., in a secure online location or on memory stick to be handed in).

Part B

- **Annotated CAD drawing** for your **one** preferred design (typically two A3 size drawings).
- **Reflective notes** detailing how your design meets the brief requirements (typically 500 words).

Additional evidence of your performance that will be captured for marking

- N/A

Marks available

- 24

Get in touch

City & Guilds Technicals Quality Team

We are here to answer any queries you may have regarding your T Level Technical Qualification delivery.

Should you require assistance, please contact us using the details below:

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