



General Certificate of Secondary Education

Technology and Design

Unit 3

Controlled Assessment Task

Design and Manufacturing Project

[GTY31]

VALID FROM JANUARY 2023

INSTRUCTIONS FOR THE CONTROLLED ASSESSMENT TASK

You have approximately **40 hours** to complete the task.

Your **design portfolio** should be a maximum of **ten A3 sheets one side only** or equivalent.

All text should be size **12**. Titles should not exceed size **16**.

Students may present the portfolio in an electronic format.

Quality of written communication will be assessed throughout the design portfolio.

Candidates' work to be submitted **May 2024**

Controlled Assessment Tasks must comply with the Regulations as detailed in the Subject Specification.

NB: Some Controlled Assessment Tasks instructions may constitute more than 1 page.
Please have all the information you need to complete the task if printing from a computer.

Unit 3: Design and Manufacturing Project

Instructions for teachers and students

This unit is **compulsory** for all students.

The Design Portfolio

The **design portfolio** should be a maximum of **ten A3 sheets** on one side only or equivalent. All text should be size 12. Titles should not exceed size 16.

Students may present the portfolio in an electronic format.

Students should understand that the design process is **non-linear** and creativity should be evident throughout the process.

The design portfolio is an integral part of the design project. Each design project will have its own characteristics and relevant processes, but all design portfolios should include the following:

- a chosen theme and design brief;
- a description and understanding of the design opportunity/problem;
- research and analysis of products and/or Target Market Groups (TMGs) as appropriate to the design opportunity/problem;
- freehand sketching and computer-aided design (CAD) – these must be in all design portfolios;
- specifications which identify key design criteria;
- an appropriate range of freehand concept sketches;
- an appropriate range of graphical techniques;
- clear and succinct annotation;
- evidence of creative thinking, problem solving and decision-making;
- the development of the concept(s) using freehand sketches and/or CAD/computer modelling;
- information on how the proposed solution may perform/improve, considering function, form, size, ergonomics, safety and sustainability, as appropriate;
- manufacturing and assembly details of the proposed solution;
- evidence of a physical model/mock-up to aid development of the proposed solution;
- evidence of testing and evaluation of the model(s)/mock-up(s) to check if it's a feasible proposal to manufacture and modify as necessary;
- working drawing(s) showing all the necessary details for the manufacture of the key parts; and
- evidence of testing and evaluation of the final solution, to include appropriate modifications.

Quality of written communication will be assessed throughout the portfolio.

Manufacturing

The manufactured solution should be functional and appropriately presented.

Students should understand that the design process is **non-linear** and creativity should be evident throughout the process.

The solution should have:

- scaled physical model(s) which relate(s) to and convey(s) a clear understanding of the final solution, proportion, form and function;
- evidence of the function and form of the prototype;
- appropriate materials and fabrication techniques;
- evidence of skills, precision, quality of manufacture, finish and attention to detail;
- evidence of working under test conditions;
- evidence of safety having been taken into account in its final construction and use;
- evidence of templates, patterns, jigs and formers where appropriate to assist in production; and
- evidence of creativity.

Students are expected to demonstrate design capability, creativity and innovation, using hand and computer numerical control (CNC) manufacturing skills, where appropriate, in the production and outcome of all model(s) and final prototype.

The design and manufacturing project carries a weighting of **50%** of the full qualification and has an approximate time guidance of 40 hours.

Candidates **must not** exceed the **10 A3** page limits for the portfolio component of this unit.

Themes

Candidates submitting this component in the summer of 2024 series **must** choose **one** of the following themes.

Theme 1

Play

When young children engage in play it is fun and contributes significantly to a child's overall development. It encourages social and emotional interaction, helps improve communication and language skills, and develops creativity, thinking and problem-solving through imaginary play and collaboration with others.

Theme 2

Inclusive Design

A disability can be either a mental or physical condition, which limits or restricts the movements, senses or activities of a person. As a result it can be very difficult to manage life, both in and outside the home, without adaptations being made to the products being used on a daily basis.

