

SUBJECT NAME: DESIGN & MANUFACTURE

AWARD RECEIVED: HIGHER

The main purpose of the Higher Design & Manufacture course is to allow you to further develop the skills and knowledge associated with designing and manufacturing within an industrial context.

The course enables you to develop:

- skills in design and in refining design proposals
- practical skills in the planning and development of models and prototypes
- skills in evaluation and research
- knowledge and understanding of manufacturing processes and materials
- an understanding of the impact of design and manufacturing technologies on our environment and society

ENTRY LEVEL – What do I need to do it?

The Higher course invites you to further develop those creative design skills you have gained at National 5, but with a view to the commercial manufacture of these solutions. Ideally you will have completed the National 5 Design & Manufacture course, however those students who are keen to explore and develop their skills in creative design and commercial manufacture may be able to join the course following discussion with the Principal Teacher of Craft, Design & Technology.

COURSE CONTENT – What will I learn?

Throughout the course you will be given the opportunity to develop your skills in both creative design and commercial manufacture.

Design:

You will study the processes of product design from brief to resolved design proposals and specification. You will develop skills in initiating, developing, articulating and communicating design proposals for commercial products, additionally, you will gain skills and experience in evaluating design proposals in order to refine, improve and resolve them. Through these activities you will develop an appreciation of design concepts and the various factors that influence the design and manufacture of many everyday products.

Materials and Manufacture:

In this area you will explore the processes of product design from design proposals to prototype. You will gain practical skills in the planning and making of models and prototypes. This will allow you to 'close the design loop' by manufacturing a set of design ideas, developing an appreciation of manufacturing practicalities. Through these activities you will strengthen your appreciation of the various factors that influence the design and manufacture of products and allow you to consider the manufacturing techniques and processes that would apply to a design proposal in an industrial and/or commercial context.

In both areas of study, you will gain knowledge and understanding of design and manufacturing technologies and how these impact on our environment and society.

TEACHING METHODS – What will I do?

The course is by its nature highly practical and you will spend your time in the design/clean room developing your design skills through folio tasks and the workshops where you will develop your practical model making skills. Other teaching methods may include:

- Class discussion
- Written tasks

- Group work
- Giving presentations (individual or group)

ASSESSMENT

At Higher level, you will be expected to complete and submit a number of design assignments throughout the year alongside a number of class tests in order to inform your next steps for learning as you progress through the course.

Assessment tasks may be drawn from one or more of the following design briefs*:

USB drive – Design & Manufacture a USB drive that can be realised and prototyped through 3D printing.

Handheld product evaluation – Explore and evaluate the factors that influence the design of an everyday product using a range of research techniques

Social Seating – Design & model a solution for the social areas of the school, reflecting the ethos and values of the school.

Product design modelling – Create a range of models from a variety of materials to demonstrate the part modelling can play within the design process.

At the end of the Higher course you will complete an externally set and marked assignment (90 marks) which requires you to apply course knowledge and skills to design and plan the commercial manufacture of a product to meet a given design brief. You will also sit an externally set and marked question paper (80 marks)

HOMEWORK

You will be expected to completed weekly homework tasks to consolidate your knowledge of design factors and manufacturing theory. Additionally, you may be asked to complete some design and folio tasks outside class time, this may involve CAD work. If you do not have access to ICT at home, you can use the CDT department computers during lunch or after school to complete homework tasks. The department will also have arrangements in place to allow you to complete extra practical work if you require.

PROGRESSION IN THE SENIOR PHASE

Success at Higher will allow you to progress to the Advanced Higher Design & Manufacture course. Students may also consider moving sideways to courses in National 4/5 or Higher Graphic Communication and National 4/5 Practical Woodworking.

COURSE COSTS

The Higher Design & Manufacture course has a cost of £10 associated with it to help cover cost of model making materials used.

**Note: Design tasks are subject to change*