

SUBJECT NAME: DESIGN & MANUFACTURE

AWARD RECEIVED NATIONAL 5 or NATIONAL 4

The main purpose of the Design & Manufacture course is to allow you to develop the skills and knowledge associated with designing and manufacturing.

The course enables you to develop:

- skills in designing and manufacturing models, prototypes and products
- 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 National 4/5 course invites you to develop your creative design skills and realise your concept ideas in physical form, building on the design and practical skills you have developed in S1 core technologies and the S2-3 Graphics, Design & Manufacture elective course. Ideally you will have completed the S2-3 GDM elective course, however, those students who have not followed the GDM elective course, but who are keen to explore and develop their skills in creative design and manufacture are welcome to join the course.

COURSE CONTENT – What will I learn?

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

Design:

You will study the design process from initial brief to design proposal. This helps you develop skills in initiating, developing, articulating, and communicating your design proposals and solutions. You will gain an understanding of the design/make/test process and the importance of evaluating and resolving design proposals on an ongoing basis. You will also develop a greater understanding of the factors that influence the design of everyday products and the impact of this on our environment and society.

Manufacture:

In addition, you will also study the processes surrounding the manufacture of prototypes and products. This will help you develop your practical skills as part of the design/make/test process. You will gain an appreciation of the properties and uses of materials, as well as exploring a range of workshop based manufacturing processes and techniques, allowing you to evaluate and refine your design and manufacturing solutions. You will also gain an understanding of commercial manufacture.

By integrating these two areas of study you will gain the knowledge and skills to 'close the design loop' by safely and confidently manufacturing a number of your design solutions.

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 skills manufacturing your products. Other teaching methods may include:

- Class discussion
- Written tasks
- Group work
- Giving presentations (individual or group)

ASSESSMENT

At National 5 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*:

Desktop architecture – Design & Manufacture an item to store stationary items using metal and plastic, drawing inspiration from creative architecture.

USB lighting – Design & Manufacture a desktop lighting solution around a standard component using natural timbers and man-made boards

Store, Hold & Display – Design & manufacture an item to store, hold and display items in a teenager's bedroom, using a range of resistant materials, reflecting the lifestyle of modern teenagers.

At the end of the National 5 course you will complete an externally set assignment (90 marks) which requires you to apply course knowledge and skills to Design and Manufacture a product to meet one of three given design briefs. The design element will be externally marked, and your practical work will be internally marked. You will also sit an externally set and marked question paper (80 marks)

National 4 students must also complete a number of internally marked assignments to generate evidence for each unit in order to gain the course award at this level. At National 4 level you will complete an Added Value Unit requiring you to design and manufacture a solution to a given design brief.

All students will be encouraged to work towards the National 5 qualification, with an option to complete the course at National 4 level if it becomes evident that this is a more appropriate level of study.

HOMEWORK

You will be expected to complete 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 National 4 will allow you to progress to the National 5 Design & Manufacture course. Success at National 5 will allow you to progress to the Higher Grade course in Design & Manufacture.

Students may also consider moving sideways to courses in National 4/5 Graphic Communication and National 4/5 Practical Woodworking.

COURSE COSTS

The National 4/5 Design & Manufacture course has a cost of £20 associated with it to help cover cost of resistant materials used.

**Note: Design tasks are subject to change*