

## National 4/5 Design and Manufacture

### RATIONALE

The Course provides a broad practical introduction to design, materials and manufacturing processes. It provides opportunities for learners to gain skills in both designing and in communicating design proposals. It allows learners to explore the properties and uses of materials and to make models and prototypes of products.

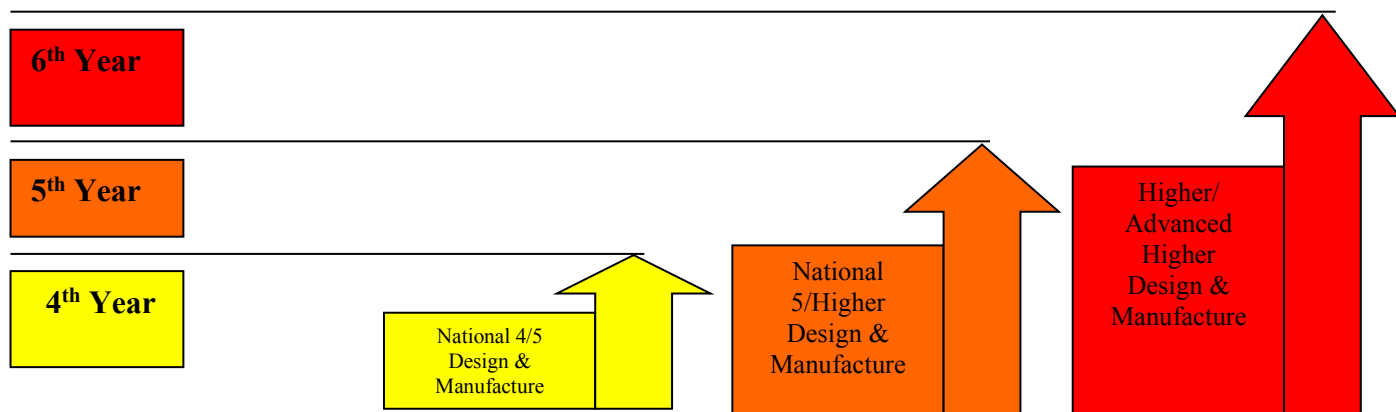
The Course is practical, exploratory and experiential in nature. It combines elements of creativity and designing for aesthetic or visual impact with a requirement to consider a product's function and performance. It helps the learner appreciate the tensions that exist between factors such as aesthetics, function, economics and the environment.

The Course allows learners to consider the various factors that impact on a product's design. It will consider the life cycle of a product from its inception through design, manufacture and use, including its disposal or re-use — a 'cradle-to-cradle' approach to design.

The Course provides learners with opportunities to develop skills that are of general value for learning, life and work: the ability to read drawings and diagrams; the ability to communicate design ideas and practical details; the ability to devise and develop practical solutions to design problems; and the ability to manufacture their design ideas.

The Course allows learners to engage with technologies and to consider the impact that design and manufacturing technologies have on our environment and society. It allows them to consider how technologies have impacted on the world of the designer and on manufacturing.

This course is of broad general benefit to all learners. It also provides a foundation for those considering further study, or a career, **in Design, Manufacturing, Engineering, Science, Marketing, and related disciplines.**



The aims of the Course are to:

- develop the ability to produce solutions to design tasks
- develop knowledge and understanding of considerations which have to be addressed when designing commercial products
- develop skills in design and manufacturing models, prototypes and products
- develop knowledge and understanding of commercial manufacturing processes and materials
- develop an awareness of economic considerations, and the social and environmental implications of design and manufacture in our society
- prepare for further study of Design and Manufacture

### **COURSE CONTENT**

The Course consists of two mandatory Units.

The Course has been designed to allow the Units to be delivered sequentially, leading the candidate through the design process from problem identification to product manufacture.

The Course content for the 2 main sections is:

- Design
- Materials & Manufacturing

### **Assessment**

To gain the award of the Course, pupils must pass all of the Units as well as the Course assessment. The Course assessment consists of a question paper and an assignment known as 'Added Value Unit'

The purpose of the question paper is to assess the pupils' skills, knowledge and understanding which they have acquired throughout the course. The question paper will have 80 marks (45% of the total mark).

The purpose of the Design and Manufacture assignment is to draw on, extend and apply the skills and knowledge developed and acquired during the Course. The assignment will have a total of 100 marks combining a design folio and a practical model (55% of the total mark).

**Further advice and information on these options is available from your Subject Teacher, Home Area Principal Teacher and Careers Adviser.**