



# AS/A2 Design Technology: Product Design (3D Design) Course Outline

## Overview

The course has been designed to encourage candidates to take a broad view of Design and Technology, to develop their capacity to design and make products and to appreciate the complex relations between design, materials, manufacture and marketing.

## AS Units

### Unit 1 – Materials, Components and Application

50% of AS, 25% of A Level  
2 hour written paper

At AS level candidates should develop an understanding of the physical and mechanical properties of a broad range of materials and components. They should understand why these are used in specific applications with particular emphasis on the life-cycle of products including manufacture, use and disposal. Candidates should have a good understanding of the methods by which materials and components can be manipulated to manufacture products. Through study and first-hand experience in practical project work, candidates will also develop knowledge of the health and safety issues relevant to working with materials. Coursework projects may also provide an opportunity for students to learn about the use of computer aided design (CAD) and computer aided manufacture (CAM), and the use of basic quality control measures.

In addition to this, through study and detailed analysis of a wide range of products, candidates should begin to develop knowledge and understanding of the broader issues for the designer such as: environmental sustainability of products and their manufacture, ergonomic and anthropometrics, inclusive design, and consumer safety.

### Unit 2 – Learning Through Designing and Making

50% of AS, 25% of A Level  
Coursework – approx 50 hours, 80 marks

Written (or electronic) design portfolio and manufactured outcome(s).  
Coursework may take a number of forms: a simple design-and-make project, two smaller projects or a portfolio of work

There is the opportunity for students to use extensive CAD/CAM resources. The design could be built using Pro Engineer then a prototype model made with a 3D Printer

## A2 Units

### Unit 3 – Design and Manufacture

25% of A Level  
2 hour written paper

There is an expectation that candidates will have a knowledge and understanding of Materials and Components, gained as a result of studying the subject content at AS level and having developed this through their coursework at Unit 2. At A2 this knowledge and understanding will be developed through Unit 4 coursework and a further study of how materials and components play a major part in:

- Design and Market Influences - e.g. the evolution, selection and application of materials for the manufacture of modern products. How the use and conservation of both energy and raw materials affect the selection and application of materials for the production and function of products today.
- Processes and Manufacture e.g. the application of materials and components to suit specific production processes, from one-off to mass-production.

### Unit 4 – Design and Making Practice

25% of A Level  
Coursework – approx 60 hours, 85 marks

Written (or electronic) design folder and manufactured outcome  
Candidates submit evidence of a simple, substantial designing and making activity

## Assessment

The course is 50% external exam and 50% centre assessed coursework. All coursework will be moderated by the exam board.

## Entry Qualifications

Students wishing to take this course will not necessarily be expected to have completed a GCSE in Design Technology. However they will require a range of GCSEs and some will be at B grade.

## Career Prospects

Careers include Product Designer, Engineer, CAD/CAM Designer/Engineer and Design and technology teaching.

Students can progress to higher education in a variety of degree level courses. A distinct advantage for courses such as Computer Aided Product Design.