



St Mary Redcliffe
and Temple School

Product Design - 3D



Product Design - 3D

Exam board: OCR

Specification no.: H406

Module information:

This is a two-year linear A level course that rapidly builds on the subject content studied at GCSE. Different focus areas are mixed together to provide a rich and varied approach to learning. Some modules are stand-alone and delivered separately for clarity. The two years of content are assessed at the end of Year 13 to give the A level grade.

A level

| Content Overview | Assessment Overview | % |
|--|--|--|
| <p>This paper is set out through four sets of questions that predominantly cover technical principles. Students will be required to:</p> <ul style="list-style-type: none">• analyse existing products• demonstrate applied mathematical skills• demonstrate their technical knowledge of materials, product functionality, manufacturing processes and techniques• demonstrate their understanding of wider social, moral and environmental issues that impact on the design and manufacturing industries. | <p>Principles of... (01)</p> <p>80 marks 1 hour 30 minutes Written paper</p> | <p>26.7% of total A level</p> |
| <p>This component has a series of longer answer questions that require students to demonstrate their problem solving and critical evaluation skills. Students will be required to:</p> <ul style="list-style-type: none">• apply their knowledge, understanding and skills of designing and manufacturing prototypes and products• demonstrate their higher thinking skills to solve problems and evaluate situations and suitability of design solutions. | <p>Problem Solving in... (02)</p> <p>70 marks 1 hour 45 minutes Written paper</p> | <p>23.3% of total A level</p> |
| <p>The 'Iterative Design Project' requires students to undertake a substantial design, make and evaluate project centred on the iterative processes of explore, create and evaluate. Students identify a design opportunity or problem from a context of their own choice, and create a portfolio of evidence in real time through the project to demonstrate their competence.</p> | <p>Iterative Design Project* (03, 04)</p> <p>100 marks Approx. 65 hours Non-exam assessment</p> | <p>50% of total A level</p> |

Course Delivery:

A Level Product Design is taught through a mixture of theory and practical work with a focus on iterative designing. Some course elements involve experimenting with equipment, software and materials and others will open up discussion-based activities. The course is set up so that you will end up with a significant product by the end of each year of study. The course is designed to encourage you to be as creative as possible, so it is important that you possess a lot of self-motivation. In the early stages of the course you will be taught key design and manufacturing skills. You will have access to a lot of materials and industrial links to facilitate the creation of your bright ideas.

You will spend most of your lesson time in the workshop. There is a designated A Level space that students can access throughout the day. Homework tasks will involve research and designing as well as extracting information to compile reports on materials and processes. Some of the teaching will come in the form of educational visits and guest speakers.

Course Content:

This course is aimed at launching you into the world of design. From this start point you can take up courses in Engineering, Architecture Product or Industrial Design or move into more Graphic Media. During the two year course, you will study a range of materials. You will develop a technical understanding of how products function and how they are made to appropriately support the design and manufacture of your own design solutions. You will learn about wider design principles and the effect of design on users and the world we live in.

The Yr12 programme is designed to give you a foundation in key designing and making skills. You will complete a number of projects, which explore a wide range of design issues in order to develop your theoretical understanding.

The final year provides the platform for you to really show what you can do through a final major project. The brief for this extended project will be set by you to give you the opportunity to meet a need or solve a problem in a creative way. The project will involve you making links with a 'real client' and working closely with them throughout the design process to realise and fulfil their requirements. There are two exams in the final year that draw on your experience throughout the whole course.

Entry requirements:

B grade in Design and Technology is required at GCSE if studied, but this is not necessary if there is evidence of relevant skills and experience in the subject area elsewhere.

Skills & personal qualities required:

This course is suited to the self-motivated, enthusiastic student who enjoys solving problems. We will give you confidence in taking your ideas and making them into a reality, having an eye for detail and quality, and conversing with the commercial world of designing.

Visits / resources:

The course involves visits to see exhibitions representing good design, along with visits to local manufacturers. All students will be issued with a textbook and there are a wide range of resources both in the library and the faculty. Students will be encouraged to make active use of the CAD/ CAM facilities within the department such as the 3D Print Farm, Laser Cutter, as well as modern manufacturing tools and equipment.

Recommended reading / websites:

- *D&T – Advanced Manufacturing Design & Technology*
Royal College of Art Schools Technology)
ISBN 0-340-70528-0
- *Product Design: Resistant Materials Technology (Heinemann)*
ISBN 0-435-75770-9
- *A Level Product Design: Nelson Thornes*
ISBN 07487-8674-0

FAQS

Q: *Can I take Product Design at A Level if I have not completed a GCSE in Product Design?*

A: The course is extremely heavy in knowledge and understanding from GCSE so ideally, you will already have a GCSE in a Product Design related subject (e.g. Systems and Control, Electronics, Engineering). However, if you don't but you do have a keen interest and genuine reason for studying Product Design at A Level, we can normally accommodate a full range of prior learning and cater for students with a knowledge deficit, providing they are willing to catch up and put in the effort early on in the course.

Q: *Will I need any specialist equipment?*

A: We will provide all tools and workshop equipment but you will need the following:

- Graphics kit (clutch pencils, fine liners, ruler, basic markers)
- Protective A3 portfolio case
- A4 folder for your course notes (with dividers)

Q: *Will I need a computer at home?*

A: CAD is an essential part of the course and your final portfolio will be digital. Even though we will provide IT access during lessons and in unstructured time (e.g. lunchtime and study periods), it will be really helpful for you to have regular access to either a desktop or laptop computer. There is no preference for Mac or PC.

For further information: Contact Mr Williams, Head of Design & Technology.

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