Design and Technology is an inspiring, rigorous and practical subject. In formulating our new GCE qualifications, OCR have chosen to offer all three endorsed titles; Design Engineering, Fashion and Textiles and Product Design. OCR has worked closely with Higher Education and industry to ensure that the direction of the qualification supports progression beyond A level.

There has also been a focus on ensuring the content reflects authentic practice, giving an insight into the way that creative, engineering and/or manufacturing industries function.

All three OCR endorsed titles also require learners to apply mathematical and scientific knowledge, understanding and skills, reflecting the importance of Design and Technology as a pivotal STEM subject.

1. Design Engineering:

The content of this title is focused towards engineered and electronic products and systems; the analysis of these in respect of function, operation, components and materials, in order to understand their application and uses in engineered products/systems that have commercial viability.

2. Fashion and Textiles:

The subject content of this title is is focused towards fashion and textiles products and accessories in a range of applications; their analysis in respect of materials, process, trends and use in relation to industrial and commercial practices of fashion and textiles.

3. Product Design:

The subject content of this title is focused towards consumer products and applications; their analysis in respect of materials, components, and marketability to understand their selection and uses in industrial and commercial practices of product development.

What's on offer?

We offer three endorsed titles Design Engineering, Fashion and Textiles or Product Design but each have some common elements so some content can be co-taught.

Qualification
Accredited

Fashion and Textiles and Product Design materials and components are both studied from the perspective of analysing modern consumer products that are designed to meet consumer needs. Learners will consider the design, manufacture and industrial and commercial practices associated with these consumer products. In Design Engineering, this is studied from the perspective of analysing modern engineered products. All titles cover wider issues associated with designing any product or system, in relation to choice of material and methods of manufacture and in the way in which they are used.

OCR encourage freedom and creativity in approaches towards designing and making, so as not to limit the possibilities of project work or the materials and processes being used. Learners are encouraged to undertake repeated design iterations using processes of explore, create and evaluate to improve design solutions that more clearly meet needs and refine solutions, resulting in prototypes that can be developed into more successful products in the future.

The content of all three of the new OCR Design and Technology qualifications have been set out in sections to offer clarity and allow for progression. These are:

- identifying requirements
- learning from existing products and practice
- implications of wider issues
- design thinking and communication
- material considerations
- technical understanding
- manufacturing processes and techniques
- viability of design solutions
- health and safety.

What if I want to offer more than one course or both AS and A level?

Each endorsed title requires a general knowledge of materials and their properties, building on GCSE. All endorsed titles cover metals, timbers, polymers, textile materials, composites, smart and modern materials to some extent. Some manufacturing techniques are common across Design Engineering and Product Design, e.g. moulding of polymers, casting of metal, sheet metal forming but all have distinct content as you would expect.

Common topics and an enquiry approach in our specification allows co-teaching of design methods and wider issues across areas. Learners should be able to apply knowledge and draw on examples from within their chosen title.

These common topics include:

- commercial feasibility of products and stakeholder analysis
- communicating ideas
- wider issues affecting design such as social, moral, economic and environmental issues
- levels of production
- digital technology in design and manufacture
- usability in designs
- achieving functionality
- testing of designs
- legal standards
- health and safety

If you wish to offer more than one of our endorsed titles some lessons could be taught in one group and some lessons by that title's subject specialists. The common NEA criteria also allows for learners across material areas to start the Iterative Design Project or Product Development together. The ethos of explore, create, evaluate is very much an independent approach by the learner that teachers facilitate.

The table below shows the assessment and structure of each course at a glance and looks at the opportunities for co-teaching AS and A level, and/or offering more than one title.

Subject	A level	AS level	Teaching more than one title
Design Engineering:	NEA Iterative Design Project 50% Principles exam 26.7% Problem Solving 23.3%	NEA Product Development 50% Principles exam 50%	All three titles have common layout and sections to offer clarity and allow for ease of teaching more than one title within a centre.
Fashion and Textiles:	NEA Iterative Design Project 50% Principles exam 26.7% Problem Solving 23.3%	NEA Product Development 50% Principles exam 50%	Examined content has a common core and this is taught with supporting examples and products from the chosen title area. Some material content also overlaps between titles.
Product design:	NEA Iterative Design Project 50% Principles exam 26.7% Problem Solving 23.3%	NEA Product Development 50% Principles exam 50%	The NEA at both AS level and A level have a common structure and mark criteria are comparable. Both use an iterative design approach of explore, create, evaluate. This allows some teaching of content and non examined work to be co-taught allowing centres to offer more than one title.

Teaching A level and AS level

The non examined assessments both use an iterative design approach of explore, create, evaluate. The courses have been designed with co-teachability in mind and the AS Product Development could be a good grounding for the A level Iterative Design Project allowing flexibility if a learner was unable to complete the full A level. The Product Development and Iterative Design Project can be facilitated side by side in lessons.

The A level examinations build on the content that is already required at AS level and our specifications are clearly presented using the same format. It should be easy to spot the additional A level content, but OCR will also be ensuring the differences are identified in all our supporting resources. Alternatively AS and A level groups can be timetabled together for some lessons for the content to be delivered across two years.

A level

A non-examined 'Iterative Design Project' is a substantial design, make and evaluate project centred on the iterative processes of explore, create and evaluate. It is worth 50% of the A Level qualification. Learners are required to identify a design opportunity or problem from a context of their own choice, and create a chronological portfolio supported by real-time evidence of a projects development. Innovative approaches will be required resulting in a final prototype that can be tested against the user and the market.

The 'Principles' examination paper is worth 26.7% of the A2 qualification and assesses analysis of existing products, technical knowledge and understanding of materials, product functionality, manufacturing processes and techniques and allows learners to demonstrate understanding of design thinking and wider social, moral and environmental issues that impact on the design and manufacturing industries. The paper is 1 hour 30 minutes long.

The 'Problem Solving' paper is worth 23.3% (70 marks) of the A Level qualification and requires learners to apply their knowledge and understanding through higher level thinking skills, reflecting on the viability of products and possible design solutions in context and being able to make critical judgements on the most appropriate methods and outcomes. The paper is 1 hour 45 minutes long.

AS level

A non-examined 'Product Development' task makes up 50% of the AS qualification. This will be on a given context provided by OCR that is open to their interpretation. The 'Product Development' will be user-centred and either deliver iterative improvements to an existing product or re-purpose a product for alternative use through iterative development. Innovative approaches will be required resulting in a final prototype that can be tested against the user and the market.

The 'Principles' examination paper is worth 50% of the AS qualification and assesses analysis of existing products, technical knowledge and understanding of materials, product functionality, manufacturing processes and techniques. This allows learners to demonstrate their understanding of design thinking and wider social, moral and environmental issues that impact on the design and manufacturing industries.
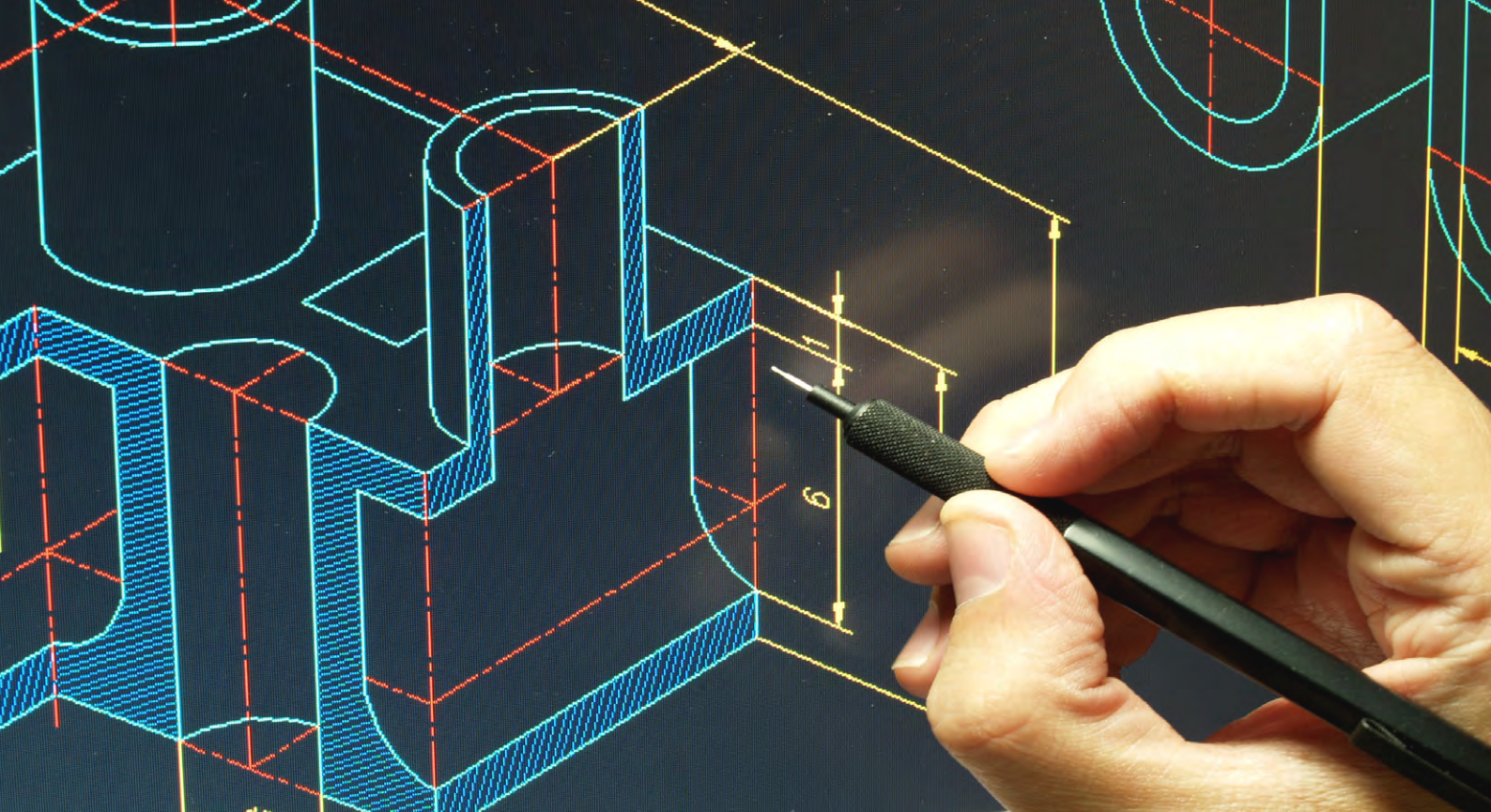
The key benefits of GCE Design and Technology for your students.

- The course will strengthen your learners' critical thinking and problem solving skills within a creative environment, enabling them to develop and make prototypes/products that solve real world problems, considering their own and others' needs, wants, aspirations and values.

- It will encourage learners to be creative in their approach to work and develop both their sketching ability and use of digital technologies. They will learn about a range of materials and components and manufacturing methods to help create functional products. They will develop intellectual curiosity about the design and manufacture of products and systems, and their impact on daily life and the wider world making them more discriminating purchasers.

- The course encourages learners to work collaboratively to develop and refine their ideas, responding to feedback from users, peers and expert practitioners. It encourages them to gain an insight into the creative, engineering and/or manufacturing industries and learn about the strategies they use.

- It covers important issues that effect design in the wider world such as sustainability, globalisation and inclusive design; in order to develop empathetic and successful designers who can consider wider social implications of products.

- Learners will build and develop on their knowledge and understanding from GCSE whilst also having the freedom to focus in more depth on areas of design and technology that most interests them. This allows access to a range of future career aspirations in the design and engineering industries, leading to future careers in product design, engineering, architecture, fashion and graphic design. It will develop design and thinking skills that open up a world of possibility for them, providing the tools to create the future.

- It will help develop skills useful in a wide range of jobs, in further study of design or engineering and in your personal life develop decision making skills, including the planning and organisation of time and resources when managing project work.