



TECHNOLOGY GCSE – ENGINEERING PRODUCTS

The concepts of “Technology and “Design” are now essential parts of modern society and are present in all aspects of our daily lives. It is hard to think of a job, activity, business or career that does not include and benefit from these concepts. Britain has a strong reputation for Engineering and the Creative industries.

The Barking Abbey ‘Design and Technology’ option at GSCE is now called **Engineering Products**. It is a new qualification that encompasses many areas of Engineering and Product Design. It includes aspects of many other subjects but combines them all in a way unique to this GCSE.

WHY CHOOSE TO STUDY DT?

What is Design and Technology
...and why choose to study it?

What will you be doing?

Understanding users

- Who your product is for and their needs
- How the product will be used

Learning about materials

- Including traditional, smart and modern materials
- Selecting the best materials for making your designs

Designing:
including **Computer Aided Design (CAD)**

- Taking risks to create more imaginative ideas
- Clearly communicating your design ideas to others

Making:
including **Computer Aided Manufacture (CAM)**

- Working safely with tools and equipment – including 3D printers
- Making high quality working prototypes

Learning how things work

- Using mechanisms, electronics and computers to control things; including robots
- Designing and making products that don't fail in use

Analysing products

- Understanding how everyday products have been designed and made
- Learning about the work of past and present designers, makers and engineers

Evaluating your own and others' work

- Expressing your opinions about products and services, to inform... the development of better solutions to real-life problems

Design and Technology is purposeful, as well as being fun and exciting! Studying GCSE Design and Technology will build on what you learnt about designing and making in Key Stage 3. You will use your knowledge and skills to design and make new and better solutions to real problems - on your own and with others - working with materials you choose.

Design and Technology is a phenomenally important subject. Logical, creative and practical, it's the only opportunity students have to apply what they learn in Maths and Science.
Sir James Dyson Founder and Chairman of Dyson and Patron to the DAT Association

D&T the design and technology association

Courtesy of DATA (Design & Technology Association)

- Design Technology is one of the broadest subjects that can provide invaluable skills to all who study it.
- You will become increasingly aware of the importance and impact of all the products around you.
- It is particularly relevant to those who are interested in science, Engineering and Business/ Economics

Where could

D&T take you?

For everyone

GCSE D&T opens the door to a wide range of careers in the creative, engineering and manufacturing industries. It is also excellent preparation for careers in many other fields e.g. medicine, law and computer science. Whatever career you choose, the knowledge and skills you learn, particularly those concerned with rapidly developing technologies, will be extremely valuable. You will also develop skills, such as teamwork and time management which are highly prized by employers.



Dualit.

Alex uses his D&T skills every day!

"I couldn't see how I could get here now, which is designing products that are sold internationally, without that first step of Design and Technology."

Alex Gort-Barten
Designer for Dualit

Abbie designs spacecraft!

"D&T was my favourite subject at school – the one time that I got to apply my creativity and problem solving skills to the creation of new products, and see my ideas become reality."

Abbie Huttery MEng (Hons) CEng
FIMechE MIET
Lead Spacecraft Structures Engineer,
EoS Mars Rover Project,
Airbus Defence and Space



Yewande says that D&T is global!

"I have found that the design skills I learnt in school and at university have helped me become a 'global citizen' – able to develop solutions to problems in very different parts of our world."

Yewande Abisola
Design Engineer, ARUP



D&T supports a wide range of careers!

"Design and Technology teaches young people to 'think with their hands.' The ability to use tools and materials to solve problems is vital, and is as important in medicine and surgery as in the jeweller's workshop or the sculptor's studio. Now more than ever, D&T is a crucial subject for every young person."

Professor Roger Kneebone
Professor of Surgical Education
and Engagement Science, Imperial College London

Holly says I earned as I learned!

"The mix of practical and theoretical learning in D&T suited me and so I looked for career routes with the same approach. I started with the Higher Apprenticeship engineering scheme at JCB which provided valuable on-the-job experience whilst earning at the same time. Having completed my Mechanical Engineering degree I am now a Design Engineer at JCB."

Holly Broadhurst
Design Engineer, JCB



Paul says D&T is important!

"In a world which is so over-supplied, one way to succeed and stand out is to have a creative and lateral way of thinking about things. Creativity makes businesses, careers and futures for people and this is why subjects like Design and Technology are so important."

Sir Paul Smith
Fashion Designer



A Level Design and Technology
Project work in areas such as:
• Engineering
• Fashion and Textiles
• Product Design

BA, BEng and BSc Degree courses
Degree courses in areas such as:
• Architecture or Building Design
• Design (including Digital and Interactive, Fashion and Textiles, Product etc.)
• Engineering (including Aerospace, Civil, Electrical, Mechanical etc.)

Technical and applied (vocational) qualifications
Vocational qualifications in areas such as:
• Building
• Computing/IT
• Construction
• Design
• Engineering
• Fashion
• Manufacturing
• Textiles

Apprenticeships
Earn as you learn without student loans in areas such as:
• Building
• Computer Aided Design (CAD)
• Construction
• Engineering
• Fashion and Textiles
• Graphic Design
• Information Communication Technology
• Manufacturing
• Planning

Careers
Many exciting careers in Design, Manufacturing or Engineering require the practical skills that D&T provides and the demand for people in these areas of work is growing fast.

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CAREER PATHS THAT FOLLOW ON FROM STUDYING DESIGN TECHNOLOGY (ENGINEERING PRODUCTS)

- Architecture
- Engineering
- Product Design
- Marketing
- Business
- Creative industries

Printing supported by
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Distribution by
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Visit www.data.org.uk for more detailed information on the qualification and career routes outlined in this pamphlet. To view a 10-minute video entitled "What is D&T and why do we need it?" go to tv.data.org.uk/news or scan the QR code.



WHAT ARE ENGINEERING PRODUCT LESSONS LIKE?

Students will need to learn skills that will be vital for adults in the coming decades. (Note to parents: - Remember that we are training students for careers, many of which do not exist yet. There was no such thing as a “drone engineer” or “social media content consultant” a decade ago!).

Skills that students will develop include;

- Creating and making innovative products
- Advanced problem solving
- Communication and design development skills
- Programming components that will be imbedded into products
- Working towards truly innovative and daring solutions to acknowledged problems
- The ability to apply mathematical and scientific principles to design solutions.
- An understanding of how products are designed, developed, manufactured and marketed

COURSE CONTENT

Exam board - OCR - Design and Technology				
Syllabus Content				
Course component	Assessment type	Time	Marks available	% of qualification
Principles of Design and Technology	Written Paper	2 hrs	100	50%
Iterative Design Challenge	Non- exam assessment	Approx. 40 hours	100	50%