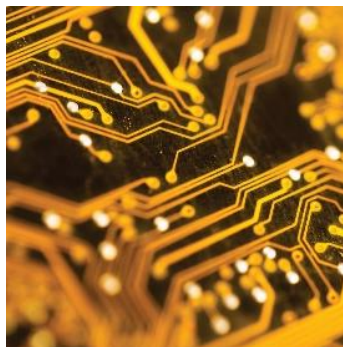


ENGINEERING

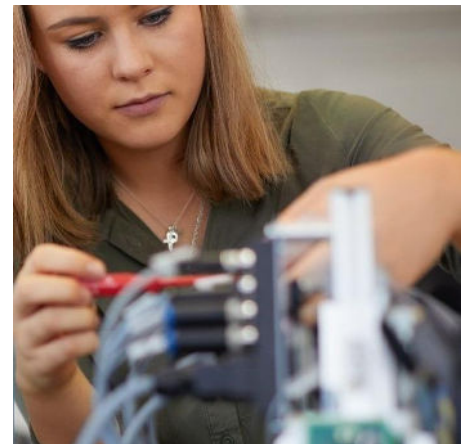
Level 3 Cambridge Technical Extended Certificate



WHY CHOOSE ENGINEERING?

Engineers are fantastic problem solvers that use a combination of maths and physics to understand and investigate the world around them. Engineers need to think logically but also need to be creative in their approach to solving problems.

The skills you develop as part of the course are highly valued by employers and provide the necessary building blocks should you wish to follow a career path into the engineering profession.

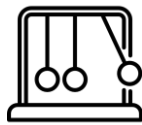


WHAT WILL YOU STUDY?

The course covers the basic mathematical and scientific principles of engineering, be that mechanical, electrical, or civil engineering. As part of the course you will learn about and solve problems in a huge variety of topics including:



Forces



Momentum



Materials



CAD



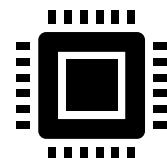
Moments



Motion



Thermodynamics



Logic Gates



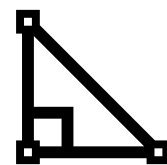
Gas Laws



Energy



Circuits



Mathematics

The Engineering course is assessed by a mixture of exams and coursework. The qualification gained will prepare students for both higher education and apprenticeships. Engineering can be studied in isolation as a pathway to vocational courses such as engineering apprenticeships, or in combination with A-levels such as Physics or Mathematics to facilitate more traditional academic routes.

The Engineering Course Has 6 Units

Year 1

Year 2



Science for Engineering

- Motion
- Forces
- Moments & Torque
- Energy & Power
- Materials
- Circuits
- Pressure
- Fluid Flow
- Heat
- Thermal Physics
- Gas Laws

January Exam



Mathematics for Engineering

- Geometry
- Algebra
- Solving Equations
- Graphs
- Exponentials
- Logarithms
- Calculus
- Statistics
- Probability

May Exam



Mechanical Engineering

- Motion
- Forces
- Moments
- Energy & Power
- Materials
- Friction
- Geometry
- Beams
- Levers
- Pulleys
- Gears

May Exam



Materials Science

- Material categories
- Atomic structure
- Material forms
- Failure modes
- Manufacturing processes
- Internal structures of steel
- Heat treatment methods
- Plastics
- Smart materials

Coursework



Electrical Engineering

- Circuits
- Resistance
- Electrical Power
- AC
- Inductance
- Capacitance
- Motors
- Power distribution
- Rectifiers
- Circuit Breakers
- Op Amps

January Exam



CAD Project

- You will learn how to interpret technical drawings and create your own.
- You will develop the skills to create 3D models using different surface techniques and use software to show assembly of multiple parts.

Coursework

WHAT TYPE OF COURSE IS ENGINEERING?

The Engineering course belongs to a group of qualifications called Cambridge Technicals. The course is a Level 3 qualification meaning that over two years it holds equivalence to other two year Level 3 courses such as A Levels. Instead of using letters, Cambridge Technical qualifications are graded as pass, merit, distinction and distinction star. If you choose to apply for Higher Education courses, for example University, your grade will be converted into UCAS points in the same way that A Level qualifications are:

A-level	UCAS Points
A*	56
A	48
B	40
C	32
D	24
E	16
U	0

Engineering (2 Years)	UCAS Points
Distinction*	56
Distinction	48
Merit	32
Pass	16

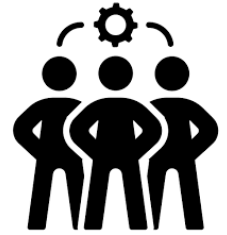
OUR TRACK RECORD

Our students consistently exceed the national average for similar qualifications. In 2022 our students achieved 50% more Distinctions and Distinction Stars compared to other centres nationwide.

Engineering Results 2022		
	WSFC	National
Grade	%	%
D*	53.3	37.2
D	20.0	11.8
M	16.7	27.9
P	10.0	25.6

EXTRACURRICULAR OPPORTUNITIES

Alongside Engineering you will have the opportunity to join our *Physics & Engineering Academy* which will help develop your practical and team problem solving skills. You will be set challenges to complete outside of your usual Engineering lessons and in the second year we are currently running a practical electronics course.




ENTRY AND SKILL REQUIREMENTS


What are the GCSE entry requirements for Engineering?


- Minimum of Grade 5 in Combined Science or Grade 5 in Physics.
- Minimum Grade 5 in Maths.

Please bear in mind, there is a high maths content in Engineering so students will also be expected to study Core Maths or another maths course alongside Engineering.




Scan this QR code to see a video of two of our highly experienced Engineering teachers, Edd and Chris describing the Engineering course and what you will study.





Scan this QR code to see a video of one of our former students discuss her experience of studying Engineering at WSFC. She achieved a Distinction Star in Engineering and went on to study *Aerospace Engineering with Pilot Studies*.



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