WORCESTER SIXTH FORM COLLEGE

ENGINEERING

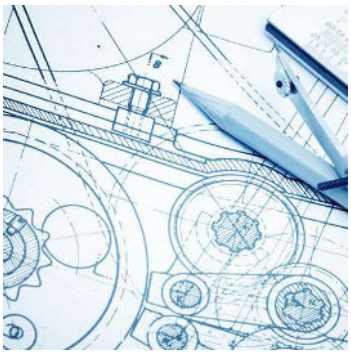
OCR Level 3 AAQ Cambridge Advanced National Extended Certificate (1 A-Level Equivalent)











WHY CHOOSE ENGINEERING?

Engineers are fantastic problem solvers that use a combination of **maths** and **physics** to understand and investigate the world around them.

There are many types of engineers including **mechanical** engineers, **electrical** engineers, **CAD** engineers and **material** engineers. You will learn about the fundamental concepts in each of these disciplines and discover strategies that will enable you to solve a huge variety of problems.

Our Engineering course can be studied in isolation as a pathway to vocational routes such as **engineering apprenticeships**, or in combination with A-level Physics and/or A-level Mathematics to facilitate more traditional academic routes into engineering.

WHAT WILL YOU STUDY?

Year 1

Principles of Engineering

You will build on your GCSE Maths & Physics skills to solve problems in these contexts:

- Geometry
- Motion & Forces
- Friction
- Moments & Torque
- Energy & Power
- Momentum
- Materials
- Structural Beams
- DC & AC Circuits
- Op Amps & Logic Gates

January Exam

Engineering in Practice

- You will learn how to analyse products, create engineering CAD drawings and design circuit simulations.
- You will make a mechanical prototype using hand tools and create a prototype of an electronic circuit.
- You will evaluate your manufactured prototypes to see how successful they have been.

Coursework

Year 2

Computer Aided Design (CAD)

- You will learn how to create 3D models using CAD software.
- You will learn how to assemble and animate multiple parts.
- You will learn how to create 2D technical drawings.
- You will learn about simulations in 3D modelling.

Coursework

Materials Science and Technology

You will learn about metals, polymers, ceramics & composite materials in terms of:

- Material Properties
- Atomic Structure
- Material Forms
- Failure Mechanisms and Failure Prevention
- Manufacturing Processes
- Heat Treatment Methods
- Smart Materials
- Sustainable Practices

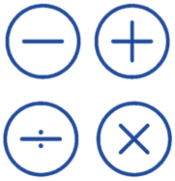
January Exam

Programmable Electronics (TBC)

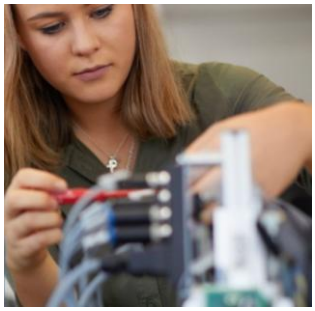
- You will learn about different types of programmable electronic devices and their applications.
- You will create models and prototypes to test how systems function.
- You will develop skills in assembly, testing, and programming to build working systems.

Coursework

Our Engineering course is split into **5 units**. The first unit of the course is a written examination with a high degree of mathematical content. You will be expected to use a formula book and scientific calculator to rearrange and solve equations,



ABOUT THE QUALIFICATION



At the end of two years you will gain a ***Cambridge Advanced National Extended Certificate in Engineering*** – an A-level-equivalent that is highly regarded by employers and many universities. This will allow you to progress onto University Engineering degrees (with A-level Maths), onto Engineering foundation degrees (without A-level Maths) as well as onto many of the most competitive Engineering apprenticeships.

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.

Cambridge Advanced National qualifications are graded as pass, merit, distinction and distinction star. If you choose to apply for Higher Education courses at 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

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

OUR TRACK RECORD

Our Engineering students consistently outperform the national average and achieve significantly higher value-added results than at other institutions.

	Engineering Results 2022		Engineering Results 2023		Engineering Results 2025	
	WSFC	National	**WSFC**	National	**WSFC**	National
Distinction or Distinction Star	**73%**	49%	**62%**	49%	**71%**	39%

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 an extracurricular practical electronics course.

WHAT OUR STUDENTS SAY ★★★★★

"I wanted to say thank you for all of the help and guidance you gave me while I was at WSFC and to let you know that the **course and materials that you produced gave immense help throughout my university experience**. The engineering course at WSFC was a brilliant basis for mechanical engineering at university and the way it was delivered during those classes **provided the groundwork needed to succeed at university**"

Henry (2019-21)

"I've found **the engineering course really links with what I've started studying here at university**, especially the two pieces of coursework. So I'm very glad that the course was on offer!"

Emma (2021-23)

"WSFC Physics & Engineering department has **the best teachers I have ever had**. You could learn the entire course to a merit level off the resources provided alone**… they are incredibly well made**."

Morgan (2023-25)

"Genuinely, first year Engineering has been FANTASTIC!!! By far my favourite and most rewarding subject - **I think the way it has been set up is exceptional**, including all the internal resources... Overall, I really enjoy this subject.

Lily (2024-26)

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*.

ENTRY AND SKILL REQUIREMENTS

- Minimum of Grade 55 in GCSE Combined Science
  or Grade 5 in GCSE Physics

- Minimum Grade 5 in GCSE 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.

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