

Macclesfield College



CURRICULUM

ENGINEERING

YOUR  
**NEXT  
CHAPTER**

PRE-ENROLMENT PACK



# A bit about the department



## ENGINEERING

The BTEC Levels 2 and 3 in Engineering are a nationally recognised work-related qualification, which encompasses mechanical and electrical elements designed to give you a good start on your journey to a career in engineering. The course is based around examined units and assignment led units that are aligned to realistic workplace situations, activities and demands. The course will introduce you to and prepare you for the world of work.

This course provides a good basis to progress onto a Level 4 qualification, such as a university, a Higher National Certificate (HNC) or Diploma (HND). Alternatively, successful completion of the qualification provides a pathway to an apprenticeship in your desired discipline.



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# What's on the course

During the Level 3 course you will study a variety of Engineering topics.

Mandatory Units (over two years) are:

- Engineering Principles
- Delivery of Engineering Processes Safely as a Team
- Engineering Product Design and Manufacture
- Applied Commercial and Quality Principles in Engineering
- A Specialist Engineering Project
- Microcontroller Systems for Engineers
- Calculus to Solve Engineering Problems

**Optional Units (total of 8 units over two years) could include:**

- Computer Aided Design in Engineering
- Computer Aided Manufacturing and Planning
- Pneumatic and Hydraulic Systems
- Principles and Applications of Fluid Mechanics
- Mechanical Behaviour of Metallic Materials
- Mechanical Behaviour of Non-metallic Materials
- Electronic Devices and Circuits
- Electronic Measurement and Testing of Circuits
- Electrical Machines
- Manufacturing Computer Numerical Control Machining Processes
- Manufacturing Secondary Machining Processes
- Additive Manufacturing Processes
- Static Mechanical Principles in Practice
- Dynamic Mechanical Principles in Practice



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# Where this course could take you

During the Level 2, Extended Certificate in Engineering, you will study various units from the main programme helping to give you a holistic view and understanding of the Engineering world. Taught units to include: The Engineering World, Investigating an Engineering Product, Interpreting and Using Engineering Information, Maths for Engineering, Health and Safety in Engineering, Machining Techniques, Electronic Circuit Design and Construction, Electrical and Mechanical Science for Engineering and Engineering Design. Alongside your main programme of study, you will also study either GCSE or Functional Skills in English and Maths if you have not achieved a GCSE grade C or above.

## Entry requirements

You will be enrolled to Level 2 or Level 3 based on your GCSE grades as detailed below:

### Level 3 entry requirements:

Grade 5 or above in Maths and a minimum of 4 GCSEs at grades 4 or above.  
Level 2 qualification in an Engineering related subject and GCSE Maths grade 5 or above

### Level 2 entry requirements:

4 GCSEs at grade 3 or above, to include Maths and ideally Science  
A level 1 qualification in Engineering and a Functional Skill Maths Level 1

## Teaching Staff and Facilities

All of the engineering teaching staff have got extensive academic and industry experience that they bring into the classroom and the workshops. All the practical elements of the course are taught using workshops, 3D printers, CAD/CAM, CNC machines and electrical/electronic workshops.



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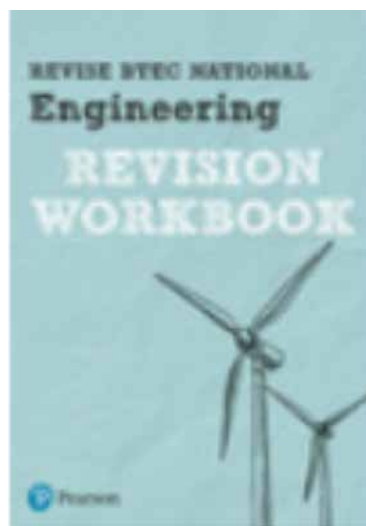
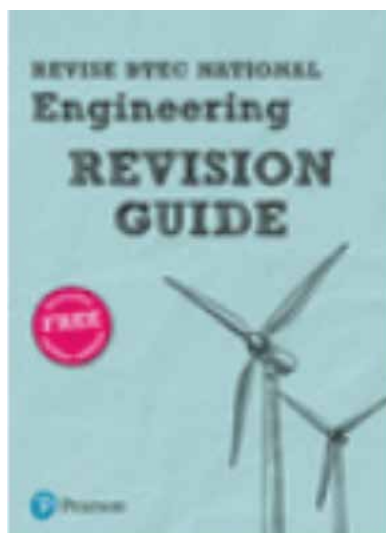
# Additional Resources

Recommended reading list

BTEC National Engineering Student Book

BTEC National Engineering Revision Workbook

BTEC National Engineering Revision Guide

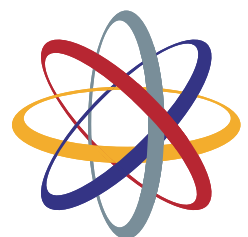


Links

<https://www.youtube.com/watch?v=EHfny69BDTk>

<https://www.youtube.com/watch?v=828RHHiEPTs>

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# Additional Resources

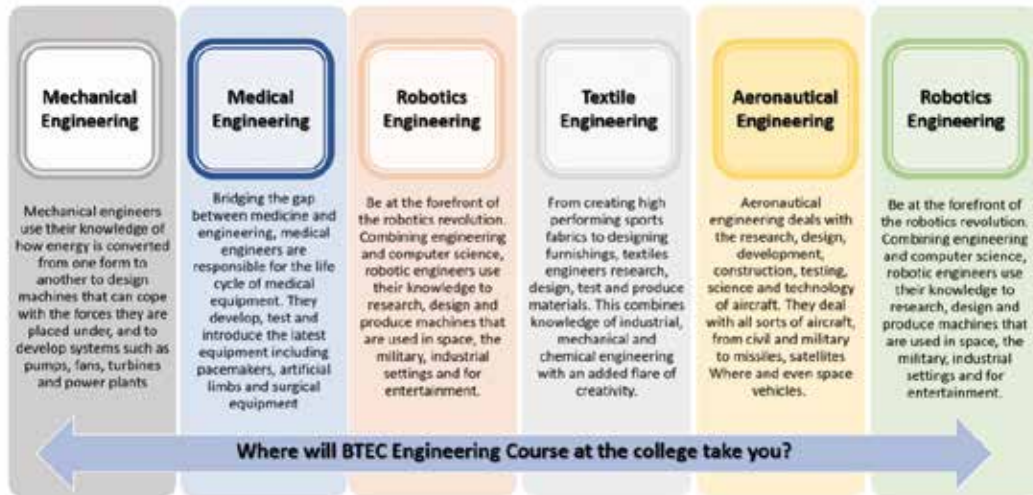


Figure 1: Potential work world based on your completion of the engineering course

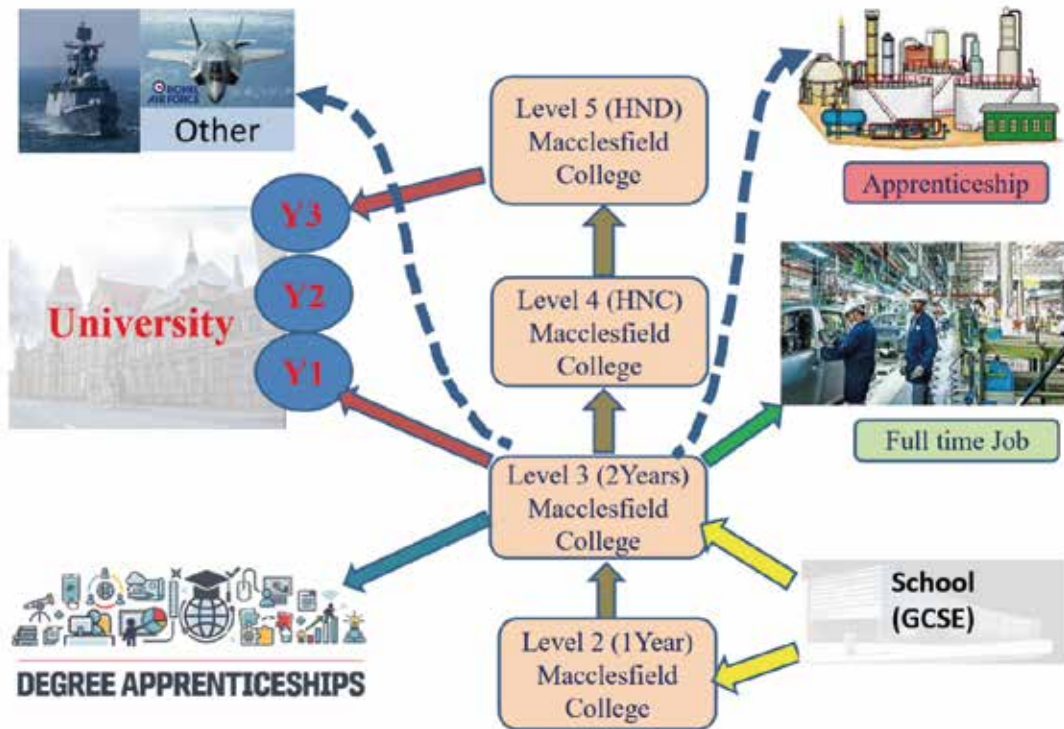


Figure 2: Possible progression of engineering study

