ENGINEERING WITH PHYSICS

Level 3 Alternative Academic Qualification
BTEC National (Extended Certificate)

COURSE OVERVIEW

This unique pathway enables students to study the principles and applications of engineering including fundamental mechanical, electrical/electronic and mathematical principles, the engineering sectors, engineering materials, engineering processes and emerging technologies.
Students will also develop important engineering design and project management skills when developing solutions to engineering challenges/problems.

KEY FACTS

Course Duration:

2 years

Entry Requirements:

Students must meet the requirements for A Level Physics and A Level Maths and AAQ Engineering:

- 5 GCSEs at Grade 9 – 5 required
- Grade 6 or above in Maths
- Grade 5 and above in English Language
- Grade 655 in all three Single Sciences with a 6 in Physics or
- Grades 66 in Synergy or Trilogy

Assessment

There are two examined units and two internally assessed units where students will engage in practical tasks to develop their Engineering skills and knowledge.

SUBJECT CONTENT

- Engineering Principles: Engineering data and applying mathematical procedures in mechanical and electrical contexts
- Engineering Applications: Advances in modern technology and how they are reshaping the engineering sector's function; materials and processes to devise sustainable solutions to engineering problems
- Engineering Design: Three-dimensional (3D) models and two-dimensional (2D) detailed drawings using a computer-aided design (CAD) system
- Engineering Project: Project management processes in Engineering products from concept to solution

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FURTHER INFORMATION

Students will develop the following knowledge and skills:

• Knowledge of units of measure, understanding of engineering data and information, application of mechanical, electronic and electrical engineering mathematical procedures in engineering contexts

• Knowledge of the engineering industry including its functional areas, emerging technologies and understanding materials and their use in the sector

• Engineering design skills including design development and technical communication skills, interpreting technical specifications and responding to briefs

• Knowledge and application of Engineering project management processes and techniques

• Transferable skills such as creativity and innovation, problem solving, personal responsibility in managing own learning and communication skills

• The ability to apply mathematical and scientific principles to solve engineering problems and demonstrate critical thinking and technical communication skills in engineering contexts are key attributes needed for higher education in STEM.

• The experiential approach to learning, and the knowledge and skills gained will give students a solid foundation for progression and demonstrate their aptitude for STEM and meeting the demands of a range of engineering degrees.

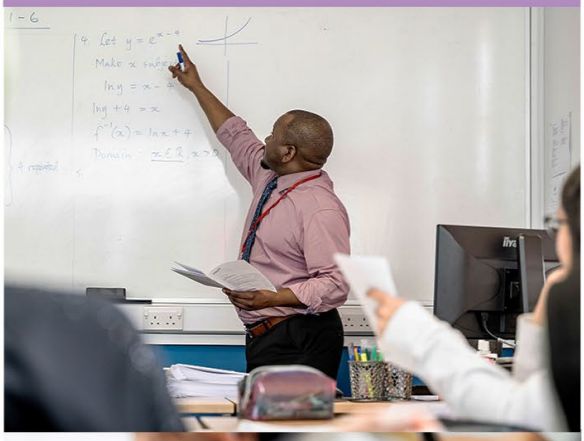
CAREER PROGRESSION

The qualification is designed to be taken alongside A Levels as part of a study programme and can link to learning in A Level STEM subjects.

It is intended for students that wish to progress into higher education as a pathway to employment in the engineering industry.

Examples of combinations within a study programme to access specific degree programmes include:

Mathematics and Physics: progression to degrees in Engineering



For more information go to www.gateway.ac.uk

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