

Spalding Grammar School Sixth Form

Subject Information

Level 3: Technical Level
Engineering – Mechatronic
Engineering

Entry Requirement:

[Grade 6 in GCSE Product Design, GCSE Resistant Materials or GCSE Engineering and a grade 7 in GCSE Mathematics.](#) Alternatively, GCSE Mathematics grade 7 together with Physics grade 6 or Dual Science grades 77.
[Students studying GCSE Textiles or GCSE Graphic Design should speak to the Head of Design Technology before applying.](#)

Awarding body: OCR

About the subject: The world of Engineering is a place where this country excels and our engineers are sought all over the world. At a time when the world is facing some of its most challenging times, qualified engineers face some of the best long term employment prospects. Most university engineering courses recognise the value of this subject as a supporting A Level equivalent to be studied alongside Maths and a Science when applying for an Engineering degree. Most students who opt for this subject already have a career expectation somewhere in this technology field and have gone on to enter degree courses or direct apprenticeships with a wide range of establishments across the country.

For students who don't wish to pursue an Engineering degree, completion of this course provides excellent evidence, through project portfolios, of their abilities to plan, complete and report complex projects, with a high degree of skill. These are all recognisable transferable skills that are valued by employers such as communication, problem solving and teamwork.

All the examination units in this qualification are mandatory and 3 of these will be completed in Y12, enabling certification of the subject. The remaining 3 units will be undertaken in Y13 to enable the extended certification of the subject. This qualification covers all the knowledge and skills that are appropriate for a learner to fully understand the interface between Mechanical and Electronic Engineering within a modern Engineering context. The coursework NEA element is broad in scope enabling students to engage in areas and skills that might support progression to specific career pathways. Presently, we are running CAD (Computer Aided Design) and CAM (Computer Aided Manufacture) units within the course but are flexible in our approach to meet individual needs.

The learner will cover topics such as:

- The scientific principles used by engineers to identify the most suitable materials in a given Engineering context.
- Use of Maths as an aid to model and solve problems across a range of practical Engineering contexts.
- Principles of Mechanical Engineering systems and components.
- Principles of Electrical and Electronic Engineering.

Assessment:

Engineering Technical Level 3 introduces learners to the world of Engineering via four external examinations, Mathematics for engineering, Science for engineering Principles of mechanical engineering and Principles of electrical and electronic engineering, along with two study modules, including from the following available topic areas:- Electrical and electronic design, Mechanical design, Computer-aided design (CAD), Materials science, Computer-aided manufacturing (CAM), Business for engineering, Engineering and the environment or a fifth examination unit of Applied mathematics for engineering. A variety of design and make projects complement the accrued

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theoretical knowledge. Time spent working with engineers in local industry gives an understanding of how the many strands of learning come together to produce world class products and services.

