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** 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: AQA

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 onto 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 of the units in this qualification are mandatory. This qualification is to ensure that it 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 – learning and understanding the core principles and technologies that underpin Mechatronics as well as the use of programmable computers and control systems.

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.
- Mechanical Engineering systems and components.
- The design and construction of a mechatronic control system.
- The process of engineering design.
- The relevance and role that manufacturing processes and systems have in the production of multiple components.
- Designing programs to drive Engineering systems.

Assessment:

Mechatronic Engineering introduces learners to the world of Engineering via two external examinations, Materials Technology and Science Mathematics for engineers, along with six study modules, including Mechanical systems, Engineering design, Production and Manufacturing, Mechatronic Project Management, Mechatronic Control Systems and Programming for Engineers. A variety of design and make projects complement the accrued 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 product and services.