

14-19 Engineering Diploma



IET Faraday 08 mapping to Engineering Diploma

With the advent of the [Engineering Diploma](#) this autumn (2008) we have indicated where initially, Faraday materials may fit into the development of specific units within Levels 1 and 2 of the Engineering Diploma curriculum.

For Faraday 09 we will be directly aligning the materials with the Engineering Diploma.

The current film components of the website are effective in demonstrating the work of engineers in industry and illustrating engineering as inspirational and a worthwhile career choice.

Please [let us know](#) if you have any specific needs for your diploma delivery that we may be able to help address.

World Water

[Challenges: [Tomorrow's Water](#), [Less Water](#)]

Principal Learning

Covers personal, learning and thinking skills

Level 1

The two Challenges cover:

Introducing the world of Engineering

The purpose of this unit is for learners to understand why engineering is important to the social and economic development of our world. Learners will be introduced to the benefits produced by technological advancement. This unit also includes the concepts of sustainability and accountability, and the requirement for the Engineering industry to operate in a way which ensures that there is minimal impact on the environment. Learners will develop research and investigative skills when exploring the contribution of engineering, as well as looking at the impact of sustainability, green issues and legislation on the way in which the Engineering industry operates. Learners must both review their own work and get feedback from others.

Sustainability, green issues and legislation

The learner can:

- identify sustainability and green issues which affect the way that the Engineering industry operates, with reference to:
 - a) sources of energy
 - b) uses of energy
 - c) long-term problems of supplying enough energy, such as global warming
- describe the benefits of being environmentally friendly

- describe the impact of legislation on the way that the Engineering industry operates with reference to:
 - a) environmental legislation
 - b) Health and Safety legislation

Engineering the future

The purpose of this unit is to introduce learners to new developments in engineering technology. The importance of developing new materials and technologies for use in the 21st century and into the future will be investigated, and learners will understand the importance of renewable energy resources and recycling activities.

An important aspect of this unit is to allow learners the opportunity to develop skills in effective participation and teamwork. They will also carry out research and demonstrate presentation and communication techniques.

Level 2

The two Challenges cover:

Engineering Design

The purpose of this unit is to provide learners with an understanding of the importance of engineering design. For a chosen product design specification, learners will produce a design solution. Research and investigative skills will be developed throughout the unit and learners will be expected to research existing products in order to plan and prepare their design solution. They will check the suitability of a design proposal against the specification and customer design brief in order to generate a number of design solutions.

Producing engineering solutions

The purpose of this unit is to provide learners with first hand practical experience of planning and producing engineering solutions whilst ensuring that Health, Safety and quality standards are applied throughout the process.

This unit will develop learners' understanding of the requirements of the Engineering industry.

Innovation, enterprise and technological advancement

The purpose of this unit is to provide learners with an understanding of the concepts of innovation and development of ideas within engineering. The unit is concerned with the process of taking design and technological innovations into the marketplace, and will encourage learners to recognise the importance of new innovations to the Engineering industry. Learners will also explore commercial issues and the environmental and social impacts of innovation, enterprise and advance. This will relate in particular to sustainability which is of importance to companies and nations.

Nature Reinvented

[Challenges: [Body Builders](#), [The Other Organ](#)]

Principal Learning

Covers personal, learning and thinking skills

Additional and specialist learning pathways Level 1 and Level 2
Applied Science Pathway

Remote Operations

[Challenges: [Global Surgery](#), [Entrepreneurial](#)]

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Introduction to electronics

The purpose of this unit is to provide learners with the opportunity to gain electronic skills and knowledge as part of their wider experience of engineering systems and materials. Electronic technologies are used in many aspects of engineering, and a familiarity with the application of electronic understanding and constructional skills forms is an important quality for engineers.

Note: if robotics is introduced

Level 2

The two Challenges cover:

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Brain Waves

[Challenges: [Sensing Illness](#), [Mind Scanner](#)]

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Engineering applications of Computers

The purpose of this unit is to develop the learner's knowledge of, and skills in, the use of computers in engineering applications such as manufacturing, communicating data, the proving of products and process control. Learners will explore why engineering systems use diagnostics and communication systems and will be encouraged to try out alternatives or new solutions when diagnosing or fault-finding. They should be prepared to repeat the work if it does not meet the required standard, or modify the procedures used on a subsequent occasion. Particularly important is co-operating with others when working towards common goals, such as repairing or designing a system. There should be particular emphasis placed on the co-operative aspect of team work and discussions relating to issues of concern. These skills are highly regarded in the Engineering industry as they play a role in finding resolutions that ensure that projects make headway and are co-ordinated. Learners are also expected to plan, record

and evaluate their ideas and testing processes, and to communicate these to peers, supervisors and customers in relevant ways.

Construct electronic and electrical systems

The purpose of this unit is to develop learners' understanding of basic electronic and electrical principles, and how electronic systems are used in engineering products. It will provide learners with the opportunity to use tools and equipment in order to construct electronic and electrical systems. The study of this unit requires learners to recognise and use test equipment and follow fault-finding procedures on electronic and electrical systems. When constructing circuits, learners should plan the sequence of operations or locations of components and connections, build and test the circuit, review the results, and apply that learning to subsequent activities. The skills and knowledge they gain will have particular relevance for the Engineering industry in activities such as robotics construction or building electronic systems.

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