This subject guide relates to courses developed from the Engineering Technology Senior Syllabus 2010.

Why study Engineering Technology?

Engineering Technology is designed for students in the senior phase of learning who have an interest in the practical application of science, mathematics and technology. It provides them with opportunity to pursue a wide variety of professional career pathways, especially those that involve scientific research and problem-solving skills.

This is a course that helps students understand the concepts and principles of engineering in its broadest sense. It is concerned with the theoretical concepts and practical applications related to technology, industry and society, engineering materials, engineering mechanics, and control systems. The course draws upon the fundamental principles of science, mathematics and technology, reinforcing conceptual ideas through practical workshop and laboratory activities. Integrated throughout is the development of technical communication skills applicable to engineering.

A course in Engineering Technology meets the needs of students in a modern society increasingly concerned with social, economic, humanitarian and environmental issues such as sustainability, renewable energies and Indigenous perspectives.

What is studied?

The course of study is structured around an engineering design process that draws on scientific, mathematical and engineering knowledge covered in four interrelated areas of study:

- Technology, industry and society — the interdependence that occurs among technology, industry and society
- Engineering materials — the nature of materials, their property—structure relationships, and the various mechanisms for modifying materials
- Engineering mechanics — the study of mechanics and associated practical applications
- Control systems — the study of control systems, the associated software, hardware and mechanisms, and the application of automated technologies in industry and society.

Technology contexts provide a real-world focus for coverage of the selected subject matter. Possible contexts include agriculture, aerospace (aviation), appropriate technology (simple technologies), biomedicine, communication, construction, energy, manufacturing, mining, sustainability and transportation.

How do students learn?

Students are required to undertake a variety of engineering design challenges which include activities such as testing of materials, formulation of problems, analysis of engineering solutions, modelling solutions and prototyping. These activities provide a framework by which theoretical principles can be investigated and tested. Through the engineering design process, students are
encouraged to understand and appreciate the interaction and interdependence among engineering technologies, industry, society and the built and natural environments.

Most of the teaching and learning takes place in a classroom. However, there are practical activities that require the use of science and technology laboratories, computer rooms and resource centres. Field excursions are an important component of the course.

**How are students assessed?**

The achievement level awarded to each student on exit from the course will be based on the fullest and latest information about each student’s achievement of the exit standards of the course.

The exit standards are described in terms of:

- **Knowledge and application**
- **Investigative and analytical processes**
- **Evaluation and technical communication.**

Assessment techniques used by schools include supervised written assessments, extended written response items, calculations, responses to stimulus materials, project and research work, investigations and assignments. The technical engineering report is a response to an engineering design challenge that requires the application of the engineering design process. Appropriate tasks would encourage modelling and simulation of engineering principles and applications.

Non-written presentations, such as datashow or multimedia presentations, seminar presentations, debates, mock interviews, speeches and radio/TV news reports may also be employed.

**How can parents help?**

Parents can help students by providing a supportive environment in the home, by showing an interest in what students are doing daily, and by encouraging them in their studies. They should encourage their student to read widely in the subject and be aware of recent technological developments.

Parents and guardians might also consider:

- perusing the Engineering Technology syllabus from which schools plan their programs of work
- discussing the school work program with the teacher
- discussing the student's progress with the student and relevant school personnel
- drawing attention to engineering-related issues as presented in the media.

**More information**

If you would like more information, please email seniorsyllabuses@qcaa.qld.edu.au. You can also visit the QCAA website www.qcaa.qld.edu.au and search for ‘Engineering Technology’.