Information Processing and Technology

Subject Guide 2010

This subject guide relates to courses developed from the Information Processing and Technology Senior Syllabus 2010.

Why study Information Processing and Technology?

Information technology refers to the creation, manipulation, storage, retrieval and communication of information and to the range of technological devices and systems used to perform these functions.

Information Processing and Technology touches many aspects of human life and draws on and is applied to diverse fields of study such as mining, engineering, education or business. As a result, the study of this subject will contribute in a significant way to the general education of students, whether or not they intend proceeding to employment specific to information technology.

What is studied?

Information Processing and Technology has a practical approach and a significant emphasis on problem solving through applying the design, develop and evaluate cycle. The course has six topics with core subject material. Four of these topics have additional material; Intelligent systems and Computer systems are also additional material and can be included in a course of study.

Topic	Outline of topic
Algorithms	A number of procedural or algorithmic design systems are studied, and students acquire skills in at least one formal representational system.
Relational information systems	The architecture of information systems and methods for developing these systems are studied, and students produce working information systems.
Software programming	Students study the development of software and build skills in the design, development and evaluation of computer programs that solve practical problems or meet particular needs.
Structured Query Language	Students are introduced to a formal query language, Structured Query Language (SQL), for the manipulation of data within a database.
Social and ethical issues	Students study the impact of developments in information technology on themselves and communities worldwide. This topic is integrated within other topics of study.
Human–computer interaction	This topic develops students' understanding of the interaction between humans and technology to inform better design and improve user interfaces. This topic is integrated within other topics of study
Additional material	
Intelligent systems	This material introduces a formal model to describe the architecture of intelligent systems, and presents methods for developing these systems. Students produce working intelligent systems.
Computer systems	Students study how computers and computer systems are organised, designed and implemented.

How do students learn?

In studying Information Processing and Technology, students will engage in a wide variety of learning experiences including:

- using technology, solving problems, researching and collaborating

- retrieving information from databases; designing, implementing, testing, evaluating and writing documentation for information systems and other computer programs

- participating in class discussions, role-plays, dilemmas and scenarios; constructing and controlling robotics devices; critically evaluating media reports and advertisements; and undertaking case studies to investigate existing or proposed systems.

How are students assessed?

Over the four semesters, students will be required to participate in the following assessment techniques:

- supervised written assessment — students require a succinct response in the form of short or paragraph responses to questions or problems conducted under supervised conditions

- extended response assessment — students will analyse, synthesise and evaluate data and information in the development of a response. It may involve proposing a solution to a problem, expressing and justifying a point of view, explaining and evaluating an issue, or the application of concepts or theories to a circumstance. An extended response may be presented in a variety of modes. These assessments occur over a period of time during class and often in students' own time

- product assessment — students will analyse, synthesise and evaluate data and information in the development of a product based on the application of skills, theory and conceptual understandings. It may involve solving a problem using information technology. These assessments occur over a period of time during class and often in the students' own time.

How can parents help?

Parents or carers can help by providing a supportive environment in the home and by showing an interest in their student's daily activities. They can:

- encourage their student to read widely in the subject and to remain current with recent developments in information technology

- discuss topical issues related to information technology, such as those in media reports or in the news, and encourage their student to consider a variety of opinions on issues and situations and to develop reasoned and critical responses

- keep informed about Information Processing and Technology through reading the syllabus and understanding the work requirements and assessment techniques.

In general, the school will provide sufficient access to computers, peripherals and software. If parents plan to purchase a computer for the student's home use, they should discuss choice of hardware and software with the Information Processing and Technology teacher.

More information

If you would like more information, please email seniorsyllabuses@qsa.qld.edu.au. You can also visit the QSA website <www.qsa.qld.edu.au> and search for "Information Processing and Technology".