

# Information systems

Information systems is the study of the application and use of information technology - hardware, software, networks, and database - by individuals and organisations. The Department of Information Systems is the University's newest department, founded in 1995 in recognition of the growing need to understand how information technology may be used in creative ways to enhance efficiency and effectiveness.

The department's teaching and research cover those information technology and management topics that must be understood by any competent information systems professional. The department strives to foster and encourage the ability to learn and re-learn, a necessary trait for career success in this rapidly changing field.

## Bachelor of Information Systems

This course focuses on the design, specification, and creation of information systems, and on the human and organisational arrangements needed to use information systems to achieve organisational goals. To cover these increasingly interrelated topics, the course offers study in five key areas: information systems, information technology, organisations, analytical skills, and professional competencies.

Bachelor of Information Systems graduates find employment in a variety of professional roles, ranging from the very technical to the very business oriented, in public and private organisations in Australia and overseas.

Information about the BIS course requirements can be found in the Bachelor of Information Systems entry on page 24.

Information systems subjects	Points
<b>Core subjects</b>	
615-110 Foundations of Information Systems ( <i>p.1</i> )	12.5
615-140 Technologies for Information Systems ( <i>p.2</i> )	12.5
615-145 Concepts in Software Development I ( <i>p.2</i> )	12.5
615-150 Organisational Processes ( <i>p.2</i> )	12.5
615-160 Tools of Analysis ( <i>p.2</i> )	12.5
615-230 Database Concepts ( <i>p.2</i> )	12.5
615-237 Telecommunications Concepts ( <i>p.3</i> )	12.5
615-240 Concepts in Software Development II ( <i>p.3</i> )	12.5
or 615-241 Software Development II (Advanced)	
615-245 Systems Analysis and Design ( <i>p.3</i> )	12.5
615-251 Organisational Analysis and Change ( <i>p.4</i> )	12.5
615-252 Electronic Commerce ( <i>p.4</i> )	12.5
615-347 Application Environments ( <i>p.5</i> )	12.5
615-355 Legal & Ethical Frameworks ( <i>p.6</i> )	12.5
615-372 Project Management ( <i>p.6</i> )	12.5
615-373 Industrial Project ( <i>p.6</i> )	12.5
<b>Elective subjects</b>	
615-260 Enterprise Systems ( <i>p.4</i> )	12.5
615-280 Multimedia and Communications ( <i>p.4</i> )	12.5
615-330 Advanced Concepts in Database ( <i>p.4</i> )	12.5
615-335 Distributed Systems & Web Applications ( <i>p.5</i> )	12.5
615-348 Human Computer Interaction ( <i>p.5</i> )	12.5
615-351 Strategic IS Management ( <i>p.5</i> )	12.5
615-352 Managing the IT Function ( <i>p.6</i> )	12.5
615-380 Multimedia Design for Info. Systems ( <i>p.7</i> )	12.5

BSc, BAsC and BSc combined course students should check the subject entries that follow for information about which subjects are available for science credit.

## Bachelor of Information Systems (Honours)

For information about faculty and departmental entry requirements for honours, please refer to *Bachelor of Science (Honours) and Bachelor of Information Systems (Honours) (p.1)* These requirements should be considered when planning your course.

## Further information

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## Subject descriptions

No science credit will be granted for the business oriented subjects listed below from the Faculty of Economics and Commerce or the Faculty of Law.

### 100-level business-oriented subjects (non-science credit)

#### 325-101 Management

See full subject details on page 1.

#### 306-102 Accounting Concepts

See full subject details on page 1.

#### 306-104 Accounting 1B

See full subject details on page 1.

#### 316-101 Introductory Macroeconomics

See full subject details on page 1.

#### 316-102 Introductory Microeconomics

See full subject details on page 1.

#### 732-103 Principles of Business Law

See full subject details on page 1.

#### 325-102 Business in the Global Economy

See full subject details on page 1.

#### 325-103 Managing in the Asia Pacific Region

See full subject details on page 1.

### 100-level subjects

#### 615-110 Foundations of Information Systems

**Note:** This subject is regarded by the Faculty of Science as a *non-science* subject for students enrolled in the BSc, BAsC and combined BSc.

Students may not gain credit for both 615-110 and any of 615-120 Introduction to Information Systems (prior to 2004), 103-100 or 103-001 Computer Applications or 103-002 Internet Applications.

Students who have received a BOS mark of at least 40 in VCE Information Technology: Information Processing and Management (IP) can receive exemption for this subject and would then be required to choose an IS elective in lieu.

Commerce degree students are not permitted to enrol in this subject, except BCom/BIS students, where this subject is a core component.

**Credit points:** 12.5

**HECS-band:** 2

**Coordinator:** To be advised

**Prerequisites:** Nil.

**Contact:** 24 lectures (two per week) and 11 tutorials (one per week) (*Semester 1, repeat 2*).

**Description:** The subject presents the foundations of information systems. The subject focuses on conceptual (systems thinking), organisational (culture and competitiveness), economic (cost structures), managerial (outsourcing and strategic processes), and societal (legal, ethical and security issues) aspects of information systems.

At the completion of this subject, students should be able to:

- view the organisation as an information processing system designed to manage environmental uncertainty;
- discuss the use of IS for automation, integration, organisational learning, reengineering, and strategy;
- understand the economic characteristics of the information economy;
- explain the operating, managerial and strategic processes associated with IS management; and
- describe the ethical concerns associated with information privacy, accuracy, intellectual property, and accessibility.

In addition to these subject-related skills, students should acquire or extend other valuable, generic skills. These include:

- problem-solving skills; and
- working in teams to allocate duties and achieve specified goals.

**Assessment:** One end-of-semester written examination of 2 hours in length (50%); assignments involving written reports not exceeding 2000 words and group presentations (50%).

### 615-140 Technologies for Information Systems

**Note:** Students enrolled in the BSc, BAsC or a combined BSc course (except for the BSc/BIS) will receive science credit for the completion of this subject. Students may not gain credit for both 615-140 and any of 615-120 Introduction to Information Systems (prior to 2004), 306-105 Business Computing or 306-205 Business Computing.

Commerce degree students are not permitted to enrol in this subject, except BCom/BIS students, where this subject is a core component.

**Credit points:** 12.5

**HECS-band:** 2

**Coordinator:** Dr F Vetere

**Prerequisites:** Nil.

**Contact:** 24 lectures (two per week) and 11 laboratory sessions (two hours per week) (*Semester 1, repeat 2*).

**Description:** The subject focuses on the technological aspects of information systems. On completion, students will gain an understanding of key characteristics of hardware, software, networks, and telecommunication and internet systems. By integrating this knowledge, students will study the critical role of technological infrastructures in modern organisations. Students will develop practical XML-based skills in organising and managing data, and learn techniques to ensure the presentation of information is 'fit for purpose'. Finally students will learn how organisations develop, acquire and implement information systems.

In addition to these subject-related skills, students should acquire or extend other valuable, generic skills. These include:

- problem-solving skills; and
- working in teams to allocate duties and achieve specified goals.

**Assessment:** One end-of-semester written examination of 2 hours (50%); assignments involving written reports not exceeding 2000 words and practical work (50%).

### 615-145 Concepts in Software Development I

**Note:** Students enrolled in the BSc, BAsC or a combined BSc course (except for the BSc/BIS) will receive science credit for the completion of this subject. Students may not gain credit for both this subject and any of 615-185, 433-171, 433-151 or 433-142.

**Credit points:** 12.5

**HECS-band:** 2

**Coordinator:** To be advised

**Prerequisites:** 615-140 or 615-120 (prior to 2004).

**Contact:** 30 hours of lectures, 12 workshops (two hours per week) and 12 hours of laboratory sessions (*Semester 1, repeat 2*).

**Description:** The object of this subject is for students to develop problem-solving skills and to demonstrate the use of these skills in software development, using a high level language. This subject will cover topics including the software development lifecycle; the main concepts of programming - selection, iteration and subroutines; software testing and debugging, modular design and file handling.

On completing this subject, students should:

- understand the concepts of software development;
- understand how to evaluate alternative algorithmic solutions to a problem;
- be able to put these concepts in practice to develop small applications using an application framework and a high-level programming language; and
- have a working knowledge of the structure of computer systems and the role of systems software.

In addition to these subject-oriented skills students are exposed to and are expected to develop the following generic skills:

- the ability to identify a problem and logically pick it apart to generate a creative solution;
- the ability to establish a supportive network of peers and regular and effective study techniques;
- effective time management; and
- using other software such as electronic mail and web browsers.

**Assessment:** Ongoing assessment in the form of tutorial and laboratory assessment (50%); a written end-of-semester examination not exceeding three hours (50%).

Successful completion of this subject requires a pass in the examination and the practical portion of the assessment.

### 615-150 Organisational Processes

**Note:** This subject is regarded by the Faculty of Science as a *non-science* subject for students enrolled in the BSc, BAsC and combined BSc courses.

Students may not gain credit for both this subject and any of 615-181, 615-255, 306-106 or 306-207.

Commerce degree students are not permitted to enrol in this subject, except BCom/BIS students, where this subject is a core requirement.

**Credit points:** 12.5

**HECS-band:** 2

**Coordinator:** Dr P Seddon

**Prerequisites:** Nil.

**Contact:** 24 lectures (two per week) and 11 tutorials (one hour per week) (*Semester 1, repeat 2*).

**Description:** This subject focuses on a process view of organisations. A process is defined as a logically connected series of tasks that produce a defined output for a specified group of customers. Typically, organisational processes cross functional boundaries within an organisation.

At the completion of this subject, students should understand the fundamental premises and approaches of total quality management and business process (re)engineering; be aware of major organisational processes (such as order management, billing, new product development) found in many organisations; understand the importance of human self-interest in organisations and the need for controls in well-designed information systems; understand how vendors of enterprise application software are attempting to provide software that can adapt as business needs change; and be ready to commence study of inter-organisational processes.

Finally, in addition to the above content-related goals, students should also have honed their generic skills such as clear thinking, sound arguing, improved reading and writing, enhanced ability to work in a team of people, and presentation skills.

**Assessment:** A 2-hour end-of-semester written examination (60%); written work of up to 20 pages, group research and field projects taking approximately 20 hours in total (40%).

### 615-160 Tools of Analysis

**Note:** Students enrolled in the BSc, BAsC or a combined BSc course (except for the BSc/BIS) will receive science credit for the completion of this subject.

**Credit points:** 12.5

**HECS-band:** 2

**Coordinator:** Prof L Sonenberg

**Prerequisites:** Nil.

**Corequisites:** 615-145 or 433-171 or equivalent.

**Contact:** Two 1-hour lectures plus up to 1.5 hours of tutorial or laboratory work per week throughout the semester and additional unsupervised workshop time of up to two hours per week (*Semester 2*).

**Description:** Many software applications in everyday use have their foundation in mathematics. For example, security products, supporting digital signatures and facilitating email privacy, rely on number theory and abstract notions of complexity; and spreadsheet applications provide sophisticated facilities for modeling and mathematical optimisation.

The key objectives of the subject are to introduce you to mathematical concepts that provide a base for such software applications, and to convey a sense of excitement about the value of mathematical tools for addressing difficult analytical problems.

The topics have been chosen for their connection to information systems. The major topics are cryptography, covering basic mathematical techniques to ensure secure communication; and linear algebra and linear programming, including techniques for solving many types of decision problems that arise in business settings.

On completion of this subject students should have extended their ability to comprehend abstract ideas and understand how theoretical concepts can be applied in practical settings to enhance security and privacy; and have refined their analytical skills so as to be able to model and solve different types of elementary decision problems. In addition, students should have enhanced their ability to self direct their learning and to take advantage of complementary forms of learning resources.

**Assessment:** One 2-hour written examination (75%); four tests totalling no more than three hours during the semester (18%); up to five pages of written project work (7%).

### 200-level subjects

#### 615-230 Database Concepts

**Note:** This subject is regarded as a *non-science* subject for students enrolled in the BSc, BAsC and combined BSc courses.

Students may not gain credit for both this subject and either 433-351 or 433-258.

**Credit points:** 12.5

**HECS-band:** 2

**Coordinator:** Mr M Dale

**Prerequisites:** 615-145 Concepts in Software Development I (*p.2*). Students who receive a credit or exemption for 615-145 should be aware that prior knowledge of and experience in using Delphi programming is assumed for students enrolling in this subject.

**Contact:** 24 lectures (two per week), 11 tutorials (one hour per week) and 11 laboratories (one hour per week) (*Semester 1*).

**Description:** Topics will be chosen from the following list: the managerial view of data, information, and knowledge; data modeling for relational databases; SQL; database architectures and implementations; non-relational databases such as hierarchical, network, and object-oriented databases; data integrity; data warehousing; data administration; and alternative organisational memory technologies such as groupware.

On completing this subject, students should be familiar with:

- the role databases have within organisations;
- database design;
- database manipulation; and
- data administration.

Students should develop the practical skills needed for the analysis of complex business systems, and for the design of solutions in the context of those systems. They should also gain skills needed to collaborate in groups to solve problems quickly and efficiently.

**Assessment:** One 3-hour end-of-semester exam (60%); 40 hours of individual and group project work (40%).

### 615-237 Telecommunications Concepts

**Note:** This subject is regarded as a *non-science* subject for students enrolled in the BSc, BAsC and combined BSc courses.

**Credit points:** 12.5

**HECS-band:** 2

**Coordinator:** Mr M K Lawrence-Slater

**Prerequisites:** Fifty points of 100-level information systems subjects.

**Contact:** 24 lectures (two per week) and 12 tutorials (two hours per week) (*Semester 2*).

**Description:** This subject provides participants with an understanding of the concepts of information and communication technologies (ICTs) within a contextual framework.

Subject topics range from the technical - that of communications networks, methods and standards, to the organisational and societal role played by telecommunications. These, as well as the regulatory frameworks, underpin the modern telecommunications environment.

At the completion of this subject, students should understand and be able to discuss:

- the fundamentals of communications networks;
- the international standards and protocols required to achieve network interconnection and interoperability;
- network and organisational security;
- the relationships between telecommunications and society and organisations; and
- the emerging technologies and issues in the telecommunications environment.

In addition to the subject-related skills, students will acquire or extend other valuable, generic skills. These include:

- collaboration in group-work;
- written and oral communication skills; and
- the confidence to tackle unfamiliar problems.

**Assessment:** Individual and group tasks comprising active participation, seminar papers and presentations (60%); a 3-hour end-of-semester written examination (40%).

### 615-240 Concepts in Software Development II

**Note:** Students enrolled in the BSc, BAsC or a combined BSc course (except for the BSc/BIS) will receive science credit for the completion of this subject. Students cannot gain credit for both this subject and either 615-241 or 433-254.

**Credit points:** 12.5

**HECS-band:** 2

**Coordinator:** Dr S Balbo

**Prerequisites:** 615-145 Concepts in Software Development I (*p.2*) or 615-120 plus either 433-151 or 433-171.

**Contact:** 36 lectures (three per week), 11 tutorials (one hour per week) and laboratory work (two hours per week) (*Semester 1*).

**Description:** This subject consists of a survey of major programming paradigms, including an introduction to object-oriented design and programming techniques, and discussion of the software development life cycle and the tools available to facilitate software development.

At the completion of this subject, students should:

- be familiar with the use of common high-level language constructs;
- be familiar with the concepts of procedural languages and some object-oriented languages;
- be able to select an appropriate language for a given problem;

- be able to design, write, test, and debug non-complex OO programs; and
- be able to use a range of software development tools.

Students should also develop critical report-writing skills and improve their collaborative skills working in teams.

**Assessment:** A 2-hour end-of-semester written examination (50%); other assessment including individual and group projects taking up to 40 hours per team member plus continuous assessment (50%). Successful completion of this subject requires a pass in the examination and the projects portion of the assessment.

### 615-241 Software Development II (Advanced)

**Note:** Students enrolled in the BSc, BAsC or a combined BSc course (except for the BSc/BIS) will receive science credit for the completion of this subject.

Students cannot gain credit for both this subject and either 615-240 or 433-254.

Previously known as 615-241 Software Development (Advanced).

**Credit points:** 12.5

**HECS-band:** 2

**Coordinator:** Ms T Linden

**Prerequisites:** At least H3 in 615-145 Concepts in Software Development I (*p.2*) or a pass in both 433-151 Introduction to Programming (Advanced) (*p.15*) and 615-120 (prior to 2004).

**Contact:** 36 lectures (three per week), 11 tutorials (one hour per week) and laboratory work (two hours per week) (*Semester 1*).

**Description:** This subject consists of a survey of major programming paradigms, including object-oriented design and programming techniques, and discussion of the software development life cycle and the tools available to facilitate software development.

Advanced topics covered may include threads, file I/O and reusable software components.

At the completion of this subject, students should:

- be familiar with the use of common high-level language constructs;
- be familiar with the concepts of procedural languages and some object-oriented languages;
- be able to select an appropriate language for a given problem;
- be able to design, write, test and debug non-trivial programs; and
- be able to use a range of software development tools.

Students should also develop critical report-writing skills and improve their collaborative skills working in teams.

**Assessment:** A 2-hour end-of-semester written examination (50%); other assessment including individual and group projects taking up to 40 hours per team member plus continuous assessment (50%). Successful completion of this subject requires a pass in both the examination and the projects portion of the assessment.

### 615-245 Systems Analysis and Design

**Note:** Students enrolled in the BSc, BAsC or a combined BSc course (except for the BSc/BIS) will receive science credit for the completion of this subject.

Students cannot gain credit for both this subject and 615-382.

**Credit points:** 12.5

**HECS-band:** 2

**Coordinator:** Dr A Lonie

**Prerequisites:** 615-150 Organisational Processes (*p.2*) and 615-230 Database Concepts (*p.2*).

**Contact:** 24 lectures (two per week) and three hours of workshops (one 2-hour session and one 1-hour session per week) (*Semester 2*).

**Description:** This subject introduces the fundamental processes of identifying requirements for specifying and designing information systems. Students will gain experience in the tools and techniques for all stages of the analysis and design cycle. Topics may include analysis techniques, data modeling, feasibility assessment, process modeling, automated support tools including computer aided software engineering (CASE), database design and specification, prototyping, and systems development methodologies.

At the completion of this subject, students should:

- understand structured and object-oriented software development;
- be able to apply appropriate techniques to different stages of software life cycle;
- have hands-on experience with software development tools for systems analysis and design; and
- be able to participate in team projects involving analysis and design of medium-scale information systems.

In addition to the subject-related skills, students should acquire or extend other valuable, generic skills. These include:

- analytical skills that help them structure complex systems into manageable pieces; and
- team management skills.

**Assessment:** A 2-hour end-of-semester written examination (50%); group project work (50%).

Successful completion of this subject requires a pass in both the examination and the practical portion of the assessment.

### 615-251 Organisational Analysis and Change

**Note:** This subject is regarded as a *non-science* subject for students enrolled in the BSc, BAsC and combined BSc courses.

Students cannot receive credit for both this subject and either 615-351 Organisational Analysis and Change (prior to 2004) or 325-304 Organisational Analysis.

Commerce degree students are not permitted to enrol in this subject, except BCom/BIS students, where this subject is a core requirement.

**Credit points:** 12.5

**HECS-band:** 2

**Coordinator:** Dr L Firth

**Prerequisites:** 615-150 Organisational Processes (p.2).

**Contact:** 24 lectures (two per week) and 12 tutorials (one per week) (*Semester 1*).

**Description:** At the completion of this subject, students should understand the relationship between information systems implementation and organisational change; be familiar with some key issues relevant to the analysis of organisations; have explored the process of change in organisations, including resistance to change; have understood the complexity of organisational change; and be familiar with some models of organisational change management.

At the completion of this subject students should have improved their problem-solving skills; improved their capacity to deal with complex issues; enhanced their case study skills; developed skills in team work as well as independent work; enhanced their ability to read professional texts; and improved their report writing ability.

**Assessment:** A 2-hour end-of-semester written examination (50%); continuous assessment (50%) with an overall maximum length not exceeding 5000 words. The continuous assessment component is expected to take approximately six hours per week. To obtain a pass in this subject, students are required to pass the final examination, attend at least 80% of the tutorials and submit each piece of assessment.

### 615-252 Electronic Commerce

**Note:** This subject is regarded by the Faculty of Science as a *non-science* subject for students enrolled in the BSc, BAsC and combined BSc courses.

Students may not gain credit for both this subject and either 615-325 or 306-316.

Commerce degree students are not permitted to enrol in this subject, except BCom/BIS students, where this subject is a core requirement.

**Credit points:** 12.5

**HECS-band:** 2

**Coordinator:** Dr J Carroll

**Prerequisites:** 615-150 Organisational Processes (p.2).

**Corequisites:** 615-237 Telecommunications Concepts (p.3).

**Contact:** 24 lectures (two per week) and 11 laboratory classes (1 hour per week). Assignments and additional reading will require students to commit to a minimum of five hours of additional private study per week (*Semester 2*).

**Description:** This subject provides an introduction to the concepts and processes used in doing business electronically. The focus will be on the business value, rather than technical, aspects of electronic commerce. The subject will examine business-to-business and business-to-consumer electronic commerce. Topics that will be covered include business models for e-commerce, m-commerce, marketing, security and interacting with the consumer. In addition, the principles and use of e-commerce technologies such as EDI, XML, automatic identification, standardised numbering, EFT, e-hubs and e-markets in managing and re-engineering supply chains will be discussed.

Throughout the course students should acquire the following generic skills:

- collaborative skills enhanced through group work and assessment; and
- the ability to understand the implications of new technologies.

**Assessment:** A 2-hour end-of-semester written examination (50%); written work of up to 20 pages, group research and field projects taking approximately 20 hours in total (50%).

### 615-260 Enterprise Systems

**Note:** This subject is regarded by the Faculty of Science as a *non-science* subject for students enrolled in the BSc, BAsC and combined BSc courses.

**Credit points:** 12.5

**HECS-band:** 2

**Coordinator:** To be announced

**Prerequisites:** Fifty points of information systems subjects and either 615-150 Organisational Processes (p.2) or 306-106 Enterprise Process Analysis.

**Contact:** 24 lectures (two per week) and 11 tutorials (one hour per week) (*Semester 2*).

**Description:** Enterprise systems are computer-based information systems based on packaged enterprise application software that support core organisational processes in most large organisations. Built on a shared, organisation-wide database, these robustly engineered systems span functional boundaries, integrate business processes, and implement so-called 'industry best practice' processes within organisations.

This subject provides students with a good understanding of the nature and role of enterprise systems and how they may be successfully implemented within organisations. Topics covered include characteristics of enterprise systems; the architecture of enterprise application software; enterprise application integration; process and workflow modeling; design of systems around, and implementation of, enterprise application software; and assessment of benefits from enterprise systems. During the semester students are expected to complete three projects using a number of core modules from one of the most widely used ERP packages, namely SAP R/3. At the conclusion of this subject, students should have a good working knowledge of the core functionality provided by enterprise application software products like SAP R/3.

Students should develop generic skills in:

- reading and communicating results found in the related literature;
- independent learning; and
- working in a team.

**Assessment:** Project work (50%); a two-hour written final examination (50%).

### 615-280 Multimedia and Communications

**Note:** This subject is regarded as a *non-science* subject for students enrolled in the BSc, BAsC and combined BSc courses.

Students may not gain credit for both 615-280 and 103-002 Internet Applications.

**Credit points:** 12.5

**HECS-band:** 2

**Coordinator:** Jon Pearce

**Prerequisites:** Fifty points of 100-level information systems subjects.

**Contact:** 24 lectures (two per week), 24 hours of laboratory work and 11 hours of tutorials/seminars (*Semester 1*).

**Description:** This subject deals with the concepts and applications of multimedia technologies and communications to areas such as education, research and on-line developments, and with other contemporary ICT trends.

Skills in the development of digital media and critical knowledge of multimedia and communications are addressed via a strategic approach encompassing independent and group projects. Students have the opportunity to use established multimedia authoring tools for digital presentations and to develop a range of on-line skills for interactive tasks.

Features of the subject include an opportunity to pursue an independent research project, delivered as a web document, and to build multimedia team development via a group project. Critical thinking and knowledge of innovations in the fields of information and communication technologies are encouraged.

**Assessment:** Theme paper to a maximum of 1500 words (35%); team web site project involving approximately 30 hours work (35%); laboratory examination (20%); class participation (10%).

### 300-level subjects

#### 615-330 Advanced Concepts in Database

**Note:** This subject is regarded as a *non-science* subject for students enrolled in the BSc, BAsC and combined BSc courses.

**Credit points:** 12.5

**HECS-band:** 2

**Coordinator:** Mr G Wadley

**Prerequisites:** A grade of at least H3 for 615-230 Database Concepts (p.2) and successful completion of 62.5 points of 200-level information systems subjects.

**Contact:** 24 lectures (three hours per week) and 11 laboratory-based seminars (two hours per week) (*Semester 1*).

**Description:** Topics will include database administration; physical database design and implementation; emerging database technologies; relational database issues (query processing and optimisation); and database and data management. One of the department's industry partners may provide assistance in the subject's delivery. This subject builds upon students' understanding of topics such as logical database design and SQL.

At the completion of this subject, students should:

- be able to develop the physical design required of a large database system;
- be able to implement a large database; and
- be able to manage large databases efficiently

Students will also acquire and extend other valuable, generic skills through solving the problems encountered throughout the subject. These include:

- analytic and problem-solving skills;
- application of theory to practice in IS database management;
- written and oral communication skills; and
- confidence to tackle unfamiliar problems.

**Assessment:** An end-of-semester written examination of up to three hours (70%); assigned project work expected to average six hours per week (30%).

### 615-335 Distributed Systems & Web Applications

**Note:** Students enrolled in the BSc, BASc or a combined BSc course (except for the BSc/BIS) will receive science credit for the completion of this subject.

**Credit points:** 12.5

**HECS-band:** 2

**Coordinator:** Prof I Morrison

**Prerequisites:** 615-241 Software Development II (Advanced) (*p.3*) or a mark of at least H3 in either 615-240 Concepts in Software Development II (*p.3*) or 433-254 Software Design (*p.17*).

**Corequisites:** 615-237 Telecommunications Concepts (*p.3*) or 433-353 Networks and Communications (*p.18*).

**Contact:** 24 lectures (two per week) plus practical/tutorial sessions of up to two hours per week (*Semester 2*).

**Description:** Modern information systems design places a premium on the separation of the logical application and information architecture from implementation detail. Through adherence to a number of design principles, the application designer, implementer and user thereby gain a number of benefits through 'transparencies' such as the independence of implementation and use from location of modules, or platform architecture, or specific distribution of functionality or data.

In this subject, we study these transparencies and associated design principles and their application, ranging from the early attempts on the Sun ONC/RPC model through to current systems that use CORBA, XML, Web Services and .NET in development of a new generation of e-commerce applications.

Aspects of the following topics will be considered:

- Distributed systems (examples, database and application design and management);
- Client server architectures from 3- to n-tier and through Web Applications Design; and
- Distributed object-based systems and associated technologies, such as CORBA, Enterprise Java Beans/J2EE, WML/WAP (for Mobile Applications) and WebServices/.NET (for B2C and B2B Applications).

At the completion of this subject, students should:

- have a firm understanding of the issues involved in the design, implementation, and management of inter- and intra-organisational distributed systems;
- be able to build small client-server and object-based systems using an application development framework based on Java, CORBA and J2EE; and
- understand the rationale behind emerging distributed systems technologies such as WML, XML, Web Services and .NET and build small prototype systems using these.

Students will also acquire and extend other valuable generic skills in both individual and group-based problem solving and analysis in practical application of theory.

**Assessment:** A 2-hour end-of-semester written examination (60%); written assignment and group project work expected to average eight hours per week (40%). The weighting of the individual non-examination assessment components will be announced at the commencement of the subject.

### 615-347 Application Environments

**Note:** This subject is regarded as a *non-science* subject for students enrolled in the BSc, BASc and combined BSc courses.

**Credit points:** 12.5

**HECS-band:** 2

**Coordinator:** Dr A Lonie

**Prerequisites:** 615-230 Database Concepts (*p.2*) plus either 615-240 Concepts in Software Development II (*p.3*) or 615-241 Software Development II (Advanced) (*p.3*).

**Contact:** 24 hours of lectures and 24 hours of laboratory sessions (*Semester 1*).

**Description:** An applications environment is the setting in which applications development takes place within organisations. This subject investigates a number of different applications environments and provides valuable practical experience in these environments. The method of applications development needs to suit not just organisational structure but also the characteristics of the underlying computer systems and associated support software.

At the successful conclusion of the subject, the student should have:

- developed an understanding of the major characteristics of computer systems and the ways these support the development and management of information systems;
- developed an understanding of the features of different operation systems from a theoretic and practical perspective;
- developed a practical understanding of how to develop software applications in different environment situations;
- present a rational argument for selection of an operating system; and
- explain the relationship between basic theory and practical application, as demonstrated in the lecture series.

Students are also exposed to, and should develop the following generic skills:

- take account of ethical considerations in designing a project;
- develop problem-solving skills through laboratory exercises;
- think critically, and organise knowledge, from consideration of the lecture material; and
- acquire abilities in collaborative working, while participating in projects; and plan effective work schedules, to meet the regular deadlines for submission of assessable work.

**Assessment:** A 2-hour end-of-semester written examination (60%); group and individual ongoing assessment to average four hours per week throughout the semester (40%).

### 615-348 Human Computer Interaction

**Note:** Students enrolled in the BSc, BASc or a combined BSc course (except for the BSc/BIS) will receive science credit for the completion of this subject. Credit cannot be granted for both this subject and 433-371.

**Credit points:** 12.5

**HECS-band:** 2

**Coordinator:** Dr S Howard

**Prerequisites:** 50 points of 200-level subjects. Some familiarity with systems analysis and design would be an advantage.

**Contact:** 24 lectures (two per week) and one tutorial per week (*Semester 1*).

**Description:** Aspects of the following topics will be considered: theoretical foundations (conceptual theories, user characteristics, user modeling); UI technology (human-computer dialogues and input technology); and usability engineering (user-centred design; user needs analysis; participatory design and usability evaluation). Other issues in HCI will also be introduced.

At the completion of this subject, students should:

- have knowledge of the cognitive and social factors that can make interactive software effective;
- understand and be able to apply user-centred design techniques;
- be aware of the range of design principles and guidelines that can assist user interface designers, and understand the limitations of such guidelines; and
- understand the advantages and disadvantages of usability engineering and various approaches available.

Students will develop skills in report writing, oral communication, independent learning skills, public presentation and teamwork.

**Assessment:** A 2-hour end-of-semester written examination (50%); individual and/or group work to a maximum of 6000 words (50%).

**Prescribed texts:** J Preece et al. *Interaction Design: Beyond Human Computer Interaction*, John Wiley 2002.

### 615-351 Strategic IS Management

**Note:** This subject is regarded as a *non-science* subject for students enrolled in the BSc, BASc, and combined BSc courses.

**Credit points:** 12.5

**HECS-band:** 2

**Coordinator:** To be advised

**Prerequisites:** 62.5 points of level-200 information systems subjects which must include 615-251.

**Contact:** 12 lectures (one per week), twelve 90-minute case-study discussion classes and additional unsupervised case-study preparation averaging 90 minutes per week (*Semester 1*).

**Description:** This integrative subject uses a mixture of lectures and case studies to help students develop insights into the way IT should be managed in organisations. Students will be asked to view IT from the perspective of the Chief Executive Officer (CEO), and ask: How can IT help my organisation succeed in today's highly competitive marketplace? The goal of the subject is to understand the opportunities and problems that senior managers in a wide range of organisations may experience as they attempt to use IT to add value to their organisations. Topics covered include:

- Creating business advantage with IT: forces that shape business strategy, business models and IT, IT strategic alignment, globalisation and IT strategies;
- IT and organisational structure: building networked businesses, making the case for networked business;

- IT and microeconomic theory of the firm;
- Dimensions and consequences of IT failure; and
- IT-based strategic change.

At the completion of this subject, students should be able to:

- assess opportunities and risks in designing, developing, implementing, and using applications of information technology in a variety of organisations;
- explain the complexity, politics, and reality of information systems management in actual organisational settings; and
- demonstrate analytical, listening, and presentation skills developed through the cut and thrust of discussion that is required by the case method of learning.

In addition to the subject-related knowledge, students should acquire or extend other valuable generic skills, particularly the ability to identify key arguments presented both in writing (in the text and cases) and orally (in class) and assess the strength of evidence provided to support those arguments.

**Assessment:** Answers to preparation questions for topics and cases (20%); participation in class discussion (10%); 1500-2000 word written assignment submitted during semester (20%); one 2-hour written examination (50%).

### 615-352 Managing the IT Function

**Note:** This subject is regarded as a *non-science* subject for students enrolled in the BSc, BAsC, and combined BSc courses.

**Credit points:** 12.5

**HECS-band:** 2

**Coordinator:** To be advised

**Prerequisites:** 50 points of level-200 information systems subjects which must include 615-251.

**Contact:** 12 lectures (one per week); twelve 90-minute case-study discussion classes and additional unsupervised case-study preparation averaging 90 minutes per week (*Semester 2*).

**Description:** This integrative subject uses a mixture of lectures and case studies to help students develop insights into the way IT should be managed in organisations. Students will be asked to view IT from the perspective of the Chief Information Officer (CIO), and ask: How can management of the IT function help my organisation succeed in today's highly competitive marketplace? The goal of the subject is to understand the opportunities and problems that IT managers in a wide range of organisations may experience as they attempt to use IT to add value to their organisations. Topics covered include:

- Managing IT: understanding organisational requirements for IT, organising and leading the IT function;
- IT infrastructure: understanding IT infrastructure, designing IT architecture, managing diverse IT infrastructures, assuring reliable and secure IT services;
- Managing IT projects: a portfolio approach to IT projects, preparing a business case for an IT investment, evaluation of IT project proposals, information economics, reasons for IT project failure, Soft Systems and similar methodologies, other requirements engineering approaches; and
- IT outsourcing.

At the completion of this subject, students should be able to:

- assess opportunities and risks in designing, developing, implementing, and using applications of information technology in a variety of organisations;
- explain the complexity, politics, and reality of information systems management in actual organisational settings; and
- demonstrate analytical, listening, and presentation skills developed through the cut and thrust of discussion that is required by the case method of learning.

In addition to the subject-related knowledge, students should acquire or extend other valuable generic skills, particularly the ability to identify key arguments presented both in writing (in the text and cases) and orally (in class) and assess the strength of evidence provided to support those arguments.

**Assessment:** Answers to preparation questions for topics and cases (20%); participation in class discussion (10%); 1500-2000 word written assignment submitted during semester (20%); one 2-hour written examination (50%).

### 615-355 Legal & Ethical Frameworks

**Note:** This subject is regarded as a *non-science* subject for students enrolled in the BSc, BAsC and combined BSc courses.

Students cannot receive credit for both this subject and 433-343.

**Credit points:** 12.5

**HECS-band:** 1

**Coordinator:** Dr M Gibbs

**Prerequisites:** 62.5 points of 200-level information systems subjects.

**Contact:** 24 lectures (two per week) and six 2-hour seminars (fortnightly) (*Semester 2*).

**Description:** This subject introduces students to some of the ethical and legal issues associated with the use of information systems in Australia in the 21st century. Issues associated with ethics, social responsibility and professional practice are discussed. The subject also explores the ethical and legal challenges presented to organisations and Australian society by recent developments in information and communication technologies. Topics may include contracts, intellectual property, internet content control, computer crime, information privacy and safety critical systems.

At the completion of this subject, students should:

- have an understanding of the current legal framework of business with respect to information systems, including business entities, intellectual property, contracts, and privacy; and
- be exposed to, and have grappled with, a series of practical ethical questions; and
- have constructed a personal frame of reference for ethical practice.

In addition to the subject-related skills, students should acquire or extend other valuable, generic skills. These include:

- written communication skills;
- oral communication skills; and
- the ability to think critically about the implications of information technology for individuals, organisations and society.

**Assessment:** An end-of-semester written examination (30%); written assignments, group projects and written exercises submitted during the semester equivalent to 4500 words and seminar participation (70%).

### 615-372 Project Management

**Note:** This subject is regarded as a *non-science* subject for students enrolled in the BSc, BAsC and combined BSc courses.

It is advised that students take this subject and either one of 615-370 or 615-373 in consecutive semesters.

**Credit points:** 12.5

**HECS-band:** 2

**Coordinator:** Dr S Milton

**Prerequisites:** 50 points of 200-level information systems subjects.

**Contact:** 24 lectures (two per week) and 11 tutorials (one hour per week) (*Semester 1*).

**Description:** This subject will include aspects of the following topics: introduction to software requirements, project management, the project life cycle, project tasks and deliverables, defining projects and establishing project contracts, requirements analysis, feasibility analysis, cost estimation and cost/benefit analysis, project scheduling, activity networks, critical path analysis, resource leveling, risk management, quality assurance, managing project phases and project resources, testing and project delivery, post implementation review, and human aspects, interpersonal communication, teamwork, project leadership.

At the completion of this subject, students should:

- understand the motivation for use of good management practice in IS projects;
- be familiar with the various stages of the project life cycle, and the tasks and deliverables for each stage;
- have an appreciation of the risks involved in large projects and be familiar with techniques of risk management;
- be familiar with the various scheduling techniques available for project management, and be able to apply techniques such as PERT, CPM, and resource leveling to project plans;
- be capable of undertaking project costing and estimation; and
- recognise that human resources are an integral part of IT projects and need to be carefully managed.

Generic skills acquired include report writing; advanced critical decision making; presentations; advanced problem solving; teamwork; and self-directed study.

**Assessment:** A 2-hour open book end-of-semester exam (40%); scheduling and planning assignment (25%); project managers report of approximately 2000 words (25%) and tutorial assessment (10%).

### 615-373 Industrial Project

**Note:** Students enrolled in the BSc, BAsC or a combined BSc course (except for the BSc/BIS) will receive science credit for the completion of this subject. Students cannot gain credit for both this subject and 615-370.

Students must contact the subject coordinator prior to the start of the semester to arrange project team placement.

**Credit points:** 12.5

**HECS-band:** 2

**Coordinator:** Mr Tuck Leong

**Prerequisites:** 615-372 Project Management (*p.6*) and 50 points of 200-level information systems subjects including 615-245 Systems Analysis and Design (*p.3*).

**Contact:** 12 lectures (one per week) and regular team meetings (*Semester 1, repeat 2*).

**Description:** This subject is based around the completion of a significant information systems project that is of immediate practical use. Clients of the project will be external and internal to the University. Students may work in teams, depending on the size of the project. Regular meetings of the entire group of students in the subject will be the occasion for students to provide progress reports. There will be lectures and discussions on such topics as project selection, the project process, documentation and writing reports.

At the completion of the subject, students should have gained experience in:

- applying the tools and techniques covered in the course;
- selecting, planning, executing, managing, reporting on, documenting, and completing a substantial information systems project; and
- working with a support group of fellow students and an academic staff member.

In addition to the business-related skills, students should acquire and extend other valuable, generic skills through solving the problems encountered throughout the project. These include:

- analytic and problem-solving skills;
- application of theory to practice in information systems management;
- collaboration in group-work;
- written and oral communication skills; and
- confidence to tackle unfamiliar problems.

**Assessment:** Progress reports (15%); project planning and management (30%); end-of-semester reports and presentation (55%). Students may be assessed on individual contributions to group work.

### 615-380 Multimedia Design for Info. Systems

**Note:** This subject is regarded as a *non-science* subject for students enrolled in the BSc, BASc and combined BSc courses.

**Credit points:** 12.5

**HECS-band:** 2

**Coordinator:** Mr J Pearce

**Prerequisites:** 615-280 Multimedia and Communications (*p.4*).

**Contact:** 24 lectures (two per week), 12 seminars (1 per week) and a two-hour workshop each week (*Semester 2*).

**Description:** In this subject students will explore some of the current and new technologies that support multimedia systems on the web as well as some of the theoretical issues that underlie their development and use. Part of this subject aims to help students improve their technical skills in digital media using streaming technologies such as Flash, QuickTime and the Synchronised Multimedia Integration Language (SMIL), and to give students an opportunity to explore issues relating to new technologies. Much of the subject addresses the issue of how information *should* be presented rather than how it *can* be presented. To this end, the subject will present some of the cognitive underpinnings of the use of multimedia and apply these in a practical project. In recognition of the rapidity with which multimedia technologies are changing, students will have some choice in the technical aspects of some of their assignment work.

Students should improve their ability to work in and collaborate with a team as well as their ability to write a report. Seminar classes will support the development of skills in critical reading and analysis of the research literature in this area as well as in presenting an oral review of such literature.

**Assessment:** Continuous assessment contributions from seminars and workshops (35%). Seminar attendance is a hurdle requirement. Assignment relating to learning technical skills (30%, due mid-semester); assignment relating to appropriate application of multimedia (35%, due at end of semester).

### 600-311 Research Project A

See full subject details on page 1.

### 600-312 Research Project B

See full subject details on page 1.

## Subjects not offered in 2004

### 615-220 Current Issues in Information Systems I

**Note:** Students enrolled in the BSc, BASc or a combined BSc course (except for the BSc/BIS) will receive science credit for the completion of this subject. This subject counts towards the information systems component for students enrolled in the BSc/BIS.

**Credit points:** 12.5

**HECS-band:** 2

**Prerequisites:** 50 points of information systems subjects.

**Semester:** Not Offered

**Description:** The topics covered in this subject vary to maintain currency in the information systems profession. Examples of possible topics include computer-aided software engineering; the information super-highway; business opportunities on the internet; information privacy; why information systems fail; emerging technologies; information ecology and the role of information systems in organisational change; client server computing, object oriented approaches, information systems planning, open systems, evaluation and selection of software packages, information politics, information behaviour, and the value of information. Students will choose or be given topics to be investigated either individually or in groups, and will perform library, on-line and field research, prepare and deliver reports and presentations, and analyse and critically evaluate the reports and presentations of other students.

At the completion of this subject, students should:

- be conversant with a range of current technical and organisational issues related to information systems; and
- have explored these current issues in information systems while developing analytical skills and personal competencies in research, data collection and analysis, writing, listening, presenting, and working in teams.

### 615-367 Information Systems Security

**Note:** This subject is regarded as a *non-science* subject for students enrolled in the BSc, BASc and combined BSc courses.

**Credit points:** 12.5

**HECS-band:** 2

**Prerequisites:** 615-237 Telecommunications Concepts (*p.3*).

**Semester:** Not Offered

**Description:** On completion of this subject students should:

- demonstrate an understanding of the complexity of information security;
- be familiar with the issues in the management of information security;
- be able to identify and assess the critical threats to an information system;
- be able to perform a preliminary security audit of a computer system; and
- have developed the skills to plan for and react to a security incident.

Topics to be covered include an introduction to computer security; issues in network and system security; physical security; inter-network security and firewalls; viruses and worms; management of computer security; auditing; risk analysis; incident handling; recovery; and legal issues in computer security.

At the end of this subject, students should have improved their analytical and research skills, particularly in relation to the internet as an information resource, and they will have further developed their communication skills. Students should also develop collaborative skills in a group project.

### 615-370 Information Systems Project

**Note:** Students enrolled in the BSc, BASc or a combined BSc course (except for the BSc/BIS) will receive science credit for the completion of this subject.

Students cannot receive credit for both this subject and 615-373.

This subject differs from 615-373 in that a generic IS project may be offered, with a member of the department playing the role of client.

**Credit points:** 12.5

**HECS-band:** 2

**Coordinator:** To be announced

**Prerequisites:** 615-372 Project Management (*p.6*) and 50 points of 200-level information systems subject including 615-245 Systems Analysis and Design (*p.3*).

**Contact:** 12 lectures (one per week) and regular team meetings (*Not Offered*).

**Description:** This subject is based around the completion of a significant information systems project. Clients of the project will normally be internal to the University. Students may work in teams, depending on the size of the project. Regular meetings of the entire group of students in the subject will be the occasion for students to provide progress reports. There will be lectures and discussions on such topics as project selection, the project process, documentation and writing reports.

At the completion of this subject, students should have gained experience in:

- applying the tools and techniques covered in the course;
- selecting, planning, executing, managing, reporting on, documenting and completing a substantial information systems project; and
- working alone and using a support group of fellow students and an academic staff member.

In addition to the business-related skills, students should acquire and extend other valuable, generic skills through solving the problems encountered throughout the project. These include:

- analytic and problem-solving skills;
- application of theory to practice in information systems management;
- collaboration in group-work;
- written and oral communication skills; and

- confidence to tackle unfamiliar problems.

**Assessment:** Progress reports (15%); project planning and management (30%); end-of-semester reports and presentations (55%). Students may be assessed on individual contributions to group work.

## Subjects available in the Graduate Diploma in Information Systems

### 615-181 Business Processes

**Note:** This subject is regarded as a *non-science* subject for students enrolled in the BSc, BAsC and combined BSc courses.

Students may not receive credit for both this subject and any of 615-150, 615-255, 306-106 and 306-207.

This subject is taken by graduate diploma students.

**Credit points:** 12.5

**HECS-band:** 2

**Coordinator:** Dr P Seddon

**Contact:** 24 lectures (two per week) and 11 tutorials (one hour per week) (*Semester 1, repeat 2*).

**Description:** This subject focuses on a process view of organisations. A process is defined as a logically connected series of tasks that produce a defined output for a specified group of customers. Typically, organisational processes cross functional boundaries within an organisation.

At the completion of this subject, students should understand the fundamental premises and approaches of total quality management and business process (re)engineering; be aware of major organisational processes (such as order management, billing, new product development) found in many organisations; understand the importance of human self-interest in organisations and the need for controls in well-designed information systems; understand how vendors of enterprise application software are attempting to provide software that can adapt as business needs change; and be ready to commence study of inter-organisational processes. Finally, in addition to the above content-related goals, students should have honed their generic skills such as clear thinking, sound arguing, improved reading and writing, enhanced ability to work in a team of people, and presentation skills.

**Assessment:** A 2-hour end-of-semester written examination (60%); written work of up to 20 pages, group research and field projects taking approximately 20 hours in total (40%).

### 615-185 Introduction to Programming

**Note:** Students may not receive credit for this subject and 615-145, 433-171, 433-151 or 433-142.

This subject is taken by graduate diploma students.

**Credit points:** 12.5

**HECS-band:** 2

**Coordinator:** To be advised

**Prerequisites:** Eligibility for the Graduate Diploma in Information Systems.

**Contact:** 30 hours of lectures, 12 workshops (two hours per week) and 12 hours of laboratory sessions (*Semester 1, repeat 2*).

**Description:** The object of this subject is for students to develop problem solving skills and to demonstrate the use of these skills in software development, using a high level language. This subject will cover topics including the software development life cycle; the main concepts of programming - selection, iteration, subroutines; software testing and debugging, modular design and file handling.

On completing this subject, students should:

- understand the concepts of software development;
- understand how to evaluate alternative algorithmic solutions to a problem;
- be able to put these concepts in practice to develop small applications using an application framework and a high-level programming language; and
- have a working knowledge of the structure of computer systems and the role of systems software.

In addition to these subject-oriented skills students are exposed to and are expected to develop the following generic skills:

- the ability to identify a problem and logically pick it apart to generate a creative solution;
- the ability to establish a supportive network of peers and regular and effective study techniques;
- effective time management; and
- using other software such as electronic mail and web browsers.

**Assessment:** Ongoing assessment in the form of tutorial and laboratory assessment (50%); a written end-of-semester examination (not exceeding three hours) (50%).

Successful completion of this subject requires a pass in both the exam and the practical portion of the assessment.

### 615-382 Business Systems Analysis and Design

**Note:** This subject is taken by graduate diploma students.

Students enrolled in the BSc, BAsC or a combined BSc course (except for the BSc/BIS) will receive science credit for the completion of this subject.

Students may not receive credit for this subject and for 615-245 Systems Analysis and Design.

**Credit points:** 12.5

**HECS-band:** 2

**Coordinator:** Dr A Lonie

**Prerequisites:** 615-230 Database Concepts (*p.2*).

**Corequisites:** 615-181 Business Processes (*p.8*).

**Contact:** 24 lectures (two per week) and three hours of workshops per week (one 2-hour session and one 1-hour session) (*Semester 2*).

**Description:** This subject introduces the fundamental processes of identifying requirements for specifying and designing information systems. Students will gain experience in the tools and techniques for all stages of the analysis and design cycle. Topics may include analysis techniques, data modeling, feasibility assessment, process modeling, automated support tools including computer aided software engineering (CASE), database design and specification, prototyping, and systems development methodologies.

At the completion of this subject, students should:

- understand structured and object-oriented software development;
- be able to apply appropriate techniques to different stages of software life cycle;
- have hands-on experience with software development tools for systems analysis and design; and
- be able to participate in team projects involving analysis and design of medium-scale information systems.

In addition to the subject-related skills, students should acquire or extend other valuable, generic skills. These include:

- analytical skills that help them structure complex systems into manageable pieces; and
- team management skills.

**Assessment:** A 2-hour end-of-semester written examination (50%); group project work (50%). Successful completion of this subject requires a pass in both the examination and the practical portion of the assessment.