

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 23.

Information systems subjects	Points
Core subjects	
615-120 Introduction to Information Systems (p.1)	12.5
615-145 Concepts in Software Development I (p.2)	12.5
615-150 Organisational Processes (p.2)	12.5
615-160 Tools of Analysis (p.2)	12.5
615-230 Database Concepts (p.2)	12.5
615-237 Telecommunications Concepts (p.3)	12.5
615-240 Concepts in Software Development II (p.3)	12.5
or 615-241 Software Development (Advanced)	
615-245 Systems Analysis and Design (p.3)	12.5
615-251 Organisational Analysis and Change (p.3)	12.5
615-252 Electronic Commerce (p.4)	12.5
615-328 Managing the Impact of IS (p.4)	12.5
615-347 Application Environments (p.5)	12.5
615-350 Case Studies in IS Management (p.6)	12.5
615-355 Legal & Ethical Frameworks (p.6)	12.5
615-370 Information Systems Project (p.6)	12.5
615-372 Project Management (p.6)	12.5
615-373 Industrial Project (p.7)	12.5
(Students may apply to take 615-373 Industrial Project instead of 615-370 Information Systems Project)	

Elective subjects	Points
615-260 Enterprise Systems (p.4)	12.5
615-280 Multimedia and Communications (p.4)	12.5
615-330 Advanced Concepts in Database (p.5)	12.5
615-335 Distributed Systems (p.5)	12.5
615-348 Human Computer Interaction (p.5)	12.5
615-367 Information Systems Security (p.7)	12.5
615-380 Multimedia Design for Info. Systems (p.7)	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 The Asian Economies

See full subject details on page 1.

100-level subjects

615-120 Introduction to 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 courses.
- Students may not gain credit for 615-120 and any of 306-105 Business Computing, 306-205 Business Computing, 103-001 Computer Applications or 103-002 Internet Applications.
- Student who have received a BOS mark of at least 40 in VCE Information Technology: Information Processing and Management may be exempt from doing this subject.
- 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 F Vetere

Prerequisites: Nil.

Contact: Twenty-four lectures (two per week), 11 tutorials (one hour per week) and 11 laboratory sessions (two hours per week) (*Semester 1, repeat 2*).

Description: The subject aims to present the central information systems principles and demonstrate how they form an integral part of modern organisations. Topics include systems concepts; organisational processes; technological aspects of information systems; the internet and its various modern applications; legal, security and ethical issues; database design and management; and systems development life cycle.

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

- understand the different types of information systems used in organisations, and the roles of these systems;
- understand the interaction of organisational and technical issues in the use of information systems;
- have hands-on experience in developing and using small personal information systems and creating a well-formed and valid web page;
- appreciate the opportunities offered by information systems to create value in organisations, and the challenges in achieving that value; and
- have a technical foundation for understanding the hardware and software components of information systems.

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

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

Assessment: One end-of-semester written examination of no more than three hours in length (50%); assignments involving written reports, group presentations 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: Mr S Maynard

Prerequisites: 615-120 Introduction to Information Systems (*p.1*)

Contact: 30 hours of lectures; 12 workshops (two hours per week); 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, 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:

- be able to identify a problem and logically pick it apart to generate a creative solution;
- have established a supportive network of peers, and have developed regular and effective study techniques;
- be able to manage time effectively; and
- be comfortable 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.

615-150 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, 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: Twenty-four lectures (two per week), 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 etc.) 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: Knowledge of VCE Mathematical Methods 3/4 and 615-145 Concepts in Software Development I (*p.2*) or 433-171 Introduction to Programming (*p.15*), or similar programming background.

Contact: Two 1-hour lectures and a 1-hour supervised workshop per week. Additional unsupervised workshop time averaging one to two hours per week (*Semester 2*).

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

The key objectives of the subject are to introduce you to some 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 areas covered are cryptography, the study of 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 should understand how these 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 educational resources.

Assessment: One 3-hour written examination (75%). Up to 15 pages of project work and tests totaling no more than two hours during the semester (25%).

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: Dr C Veres

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 in 615-230.

Contact: Twenty-four lectures (two per week), 11 tutorials (one hour per week), 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%); and 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: Twenty-four lectures (two per week), 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:

- fundamentals of communications networks;
- international standards and protocols required to achieve network inter-connection and interoperability;
- network and organisational security;
- relationships between telecommunications and society and organisations; and
- 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
- confidence to tackle unfamiliar problems.

Assessment: Individual and group tasks comprising active participation, seminar papers and presentations (60%) and 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: Ms T Linden

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

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

Description: This subject consists of a survey of major programming paradigms, including 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 both 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 exam and the projects portion of the assessment.

615-241 Software Development (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.

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 Introduction to Information Systems (*p.1*).

Contact: Thirty-six lectures (three per week), 11 tutorials (one hour per week), 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. Some advanced topics may include threads, file I/O, 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 both 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 reports 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 exam 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: Mr C Veres

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

Contact: Twenty-four lectures (two per week), 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, 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%); and group project work (50%).

Successful completion of this subject requires a pass in both the exam 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 of 615-351 or 325-304.
- 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: Twenty-four lectures (two per week), 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%) will have 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 exam, 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: Twenty-four lectures (two per week), 11 laboratory classes (two hours 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 both 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:

- enhance their collaborative skills through group work and assessment; and
- be able 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: Twenty-four lectures (two per week), 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%) and 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 615-280 and 103-002 Internet Applications.

Credit points: 12.5

HECS-band: 2

Coordinator: To be announced

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

Contact: Twenty-four lectures (two per week), 24 hours of laboratory work, 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, broadcast media, on-line developments, including games and 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 tools for digital presentations and 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, to participate in on-line quizzes and to build multimedia team development skills 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 website project involving approximately 30 hours work (35%); quizzes (20%); participation and attendance (10%)

300-level subjects

615-328 Managing the Impact of IS

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 M Gibbs

Prerequisites: 615-251 Organisational Analysis and Change (*p.3*).

Contact: Twenty-four lectures (two per week), 11 seminar discussions (*Semester 2*).

Description: This subject integrates the learning undertaken in earlier information systems subjects. It encourages students to critically reflect upon the nature and consequences of information systems. Topics may include a critical examination of information systems as sociotechnical systems; human information behaviour; the characteristics of information, in particular its economic aspects; its transformational potential, and its organisational and social consequences. Particular emphasis will be placed on alternatives to the dominant information systems paradigm, such as the soft systems and post-modernist approaches.

At the completion of the subject, students should:

- understand the complexities of the relationships between people, information and technology in an information system;
- be familiar with a range of techniques for conceptualising organisational information systems;
- be able to manage the organisational consequences of developing and implementing information systems; and
- understand the potential social consequences of choices made in the development and implementation of information systems.

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

- collaborative skills and the ability to participate productively in group-work;
- written and oral communication skills; and

- the ability to collect, synthesise and critique literature relevant to the implications of information systems for organisations and society.

Assessment: One two-hour written examination (40%); written assignments and group projects submitted during the term equivalent to 3500 words and seminar presentations (60%).

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: Twenty-four lectures (three hours per week), 11 laboratory based seminars (two hours per week) (*Semester 2*).

Description: Topics will be chosen from the following list: database administration; advanced data modeling (focusing on relational but possibly including network, hierarchical and object oriented); relational database issues (query processing, and optimisation); data management; and database application development. This subject may include heavy involvement from one of the department's industry partners.

At the completion of this subject, students should:

- have an in-depth knowledge of the relational database model;
- be able to manage databases efficiently; and
- be able to build moderately complex database applications and SQL queries.

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;
- communication skills, written and oral; and
- confidence to tackle unfamiliar problems.

Assessment: An end-of-semester written examination of up to three hours (50%) and assigned project work expected to average six hours per week (50%).

615-335 Distributed 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.

Credit points: 12.5

HECS-band: 2

Coordinator: Prof I Morrison

Prerequisites: 2003: 615-240 Concepts in Software Development II (*p.3*) or 433-254 Software Design (*p.16*)

From 2004: 615-241 Software Development (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.16*).

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

Contact: Twenty-four 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 separation of the logical applications and information architectures from the implementation detail.

In this subject, we will look at the associated design principles through theory and examples. We will see how adherence to these in a heterogeneous environment facilitates open e-commerce.

Aspects of the following topics will be considered:

- distributed systems (typical examples, database and application design, reliability, resilience and security);
- client server architectures from 3- to n-tier;
- distributed systems development environments;
- open and closed e-commerce systems;
- distributed object-based systems, such as Enterprise Java Beans and CORBA; and
- development in web-based environments through technologies such as WML/WAP and XML/HTTP.

At the completion of this subject, students should:

- have a firm understanding of the significant issues involved in the design, implementation, and management of distributed systems;
- be able to build small client-server and object-based systems using an application development framework;
- understand the role, frameworks and basic functionality of emerging distributed systems technologies such as WML, XML and SOAP (the Simple

Object Access Protocol) and be able to build small prototype systems using these; and

- understand how these technologies form the basis for web services and underpin e-commerce systems integration.

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%) and a written assignment and group project work (40%) expected to average eight hours per week. 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: Mr S Maynard

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

Contact: Twenty-four hours of lectures; 12 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 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: Fifty points of 200-level subjects. Some familiarity with systems analysis and design would be an advantage.

Contact: Twenty-four lectures (two per week), 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-centered 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.

615-350 Case Studies in 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: Dr P Seddon

Prerequisites: Fifty points of 200-level information systems subjects.

Contact: Twenty-four sessions (two 2-hour lectures per week) (*Semester 2*).

Description: This integrative subject uses the case study technique to help students develop insights into the way IT should best be managed in organisations. It requires students to apply concepts, knowledge, and principles from all prior subjects as they act as decision makers for a wide range of IT management-related problems in a wide range of organisations. The goal of the subject is to understand the potentials and pitfalls as senior managers attempt to use IT to add value to a wide range of organisations. The orientation of this subject is managerial, not technical. For example, students will be asked to see the role of IT more from the perspective of the Chief Executive Officer (CEO) than the Chief Information Officer (CIO).

At the completion of this subject, students should:

- be familiar with the experiences of a variety of organisations as they design, develop, implement, and use applications of information technology;
- have experience in dealing with the complexity, politics, and reality of information systems management in actual organisational settings;
- be exposed to the operations and cultures of organisations, both well and poorly run, in various countries;
- developed analytical, listening, and presentation skills through the cut and thrust of discussion that is required by the case method of learning; and
- know how to induce general principles from the experiences and problems of individual organisations.

Assessment: Regular submissions of answers to preparatory questions (50%), class participation (10%), 2-hour end-of-semester examination (40%).

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: Fifty points of 200-level information systems subjects.

Contact: Twenty-four lectures (two per week) and six two-hour seminars (fortnightly) (*Semester 1*).

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: A one-hour written examination (25%); written assignments, group projects and written exercises submitted during the semester equivalent to 4500 words and seminar participation (75%).

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

Contact: Twelve 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. 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;
- communication skills, written and oral; 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.

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: Fifty points of 200-level information systems subjects.

Contact: Twenty-four lectures (two per week), 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.

Credit points: 12.5 **HECS-band:** 2

Coordinator: To be announced

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

Contact: Twelve lectures (one per week), and regular team meetings (*Semester 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 both 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 along 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;
- communication skills, written and oral; 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: Twenty-four lectures (two per week), 12 seminars (1 per week), and two-hour workshops each week (*Semester 2*).

Description: Multimedia systems on the web are now important features of information systems in a wide variety of industries: commerce, education, communications, media, health, government, hospitality and others. 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. Students will improve their existing technical skills and learn new skills in digital media using streaming technologies such as Flash, QuickTime and the Synchronised Multimedia Integration Language (SMIL) and have an opportunity to explore issues relating to new technologies (for example DHTML, XML). 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 and collaborate as a team as well as 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 compulsory. Assignment relating to learning technical skills in a new technology (30%); assignment relating to appropriate application of multimedia (35%).

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 2003

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: Fifty 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;
- have developed the skills to plan for and react to a security incident.

Topics to be covered include 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; legal issues in computer security.

At the end of this subject, students should have improved their analytical and research skills, in particular 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.

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, 306-207.
- This subject is taken by graduate diploma students.

Credit points: 12.5 **HECS-band:** 2

Coordinator: Dr P Seddon

Contact: Twenty-four lectures (two per week), 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 etc.) 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%).

615-185 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: Mr S Maynard

Prerequisites: Eligibility for the Graduate Diploma in Information Systems

Contact: Thirty hours of lectures; 12 workshops (two hours per week), 12 hours of laboratory sessions (*Semester 1*).

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:

- be able to identify a problem and logically pick it apart to generate a creative solution;
- have established a supportive network of peers, and have developed regular and effective study techniques;
- be able to manage time effectively; and
- be comfortable 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 C Veres

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

Corequisites: 615-181 Business Processes (*p.7*).

Contact: Twenty-four lectures (two per week), 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, 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 com-

puter 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%); and group project work (50%). Successful completion of this subject requires a pass in both the exam and the practical portion of the assessment.