Bachelor of Corporate Systems Management/Bachelor of Information Technology (IT07)

Year offered: 2011
Admissions: Yes
CRICOS code: 063028M
Course duration (full-time): 4 years
Domestic Fees (indicative): 2011: CSP $3,978 (indicative) per semester
International Fees (indicative): 2011: $11,000 (indicative) per semester
Domestic Entry: February
International Entry: February
QTAC code: 418932
Past rank cut-off: 74
Past OP cut-off: 13
OP Guarantee: Yes
Assumed knowledge: English (4,SA), Maths A, B or C (4,SA)
Preparatory studies: For information on acquiring assumed knowledge visit http://www.qut.edu.au/assumed-knowledge
Total credit points: 384
Standard credit points per full-time semester: 48
Course coordinator: Mike Roggenkamp (Information Technology Major), Dr Taizan Chan (Corporate Systems Management Major)
Campus: Gardens Point

Career Outcomes
The professional skills gained from this double degree are applicable across all business domains. As a graduate, you can expect to work in roles such as a business analyst or consultant, information and communication technologies project manager or information technology infrastructure manager, information analyst, business process manager, information manager, database manager, data communications specialist, systems analyst or programmer.

Professional Recognition
This course is accredited by the Australian Computer Society (ACS). ACS accreditation is internationally recognised by the Seoul Accord.

Study Areas
IT07 will not have nominated majors and minors and consequently there will not be a Study Area A shown on a graduate's parchment. Instead, IT07 will have specialisations. The specialisation areas that will be available for students will include:
- Business Process Management
- Data Warehousing
- Digital Societies
- Enterprise Systems
- Information Management
- Network Systems
- Software Engineering
- Web Technologies

Pathways to Further Studies
In 2001, the Faculty introduced an accelerated Honours program to increase the number of Bachelor of Information Technology students continuing their studies to complete the Honours year. The program allowed selected high achieving students the opportunity to undertake one postgraduate unit in the final semester of their a BIT degree (or double degree) which would be counted both for completion of the degree and towards the Honours program. The program also provided students with the opportunity to commence their Honours studies over the Summer Semester.

An alternative to the Honours program is the Master of Information Technology (Research). Students who complete a BIT degree (or double degree) with a grade point average equal to, or greater than 5 (7 point scale) and who have decided against enrolling in an Honours program, could undertake this course. In addition, students may wish to enrol in the re-designed postgraduate coursework Masters which has ten specialisations allowing students to either extend their area of interest or specialise in other areas at the Masters level.

Cooperative Education
The Faculty's Cooperative Education Program gives you the opportunity of 10-12 months paid industry placement during your course where you can integrate real experience with what you’re learning in your degree. Companies that QUT's Coop Ed students have worked with include Energex, Boeing, CITEC, CSC Mining, Environmental Protection Agency, Dialog, UNiTAB, RACQ and many Queensland Government departments. The Coop Ed Program is available to Australian citizens and permanent residents only.

Find out more about the Cooperative Education Program.

Further Information
For further information about this course, please contact:

Course Coordinator
Dr Taizan Chan or Mr Richard Thomas
Deferment

Domestic students can defer their offer in this course for one year. In exceptional circumstances up to 12 months of additional deferment may be granted.

Find out more on deferment.

IT Specialisation Option Unit List

**IT Specialist Option Units**

You must complete four (4) units from the following list. Please ensure you have completed a minimum of 36 credit points (3 units) of IT Breadth Option Units before commencing these units. The units are grouped in areas to assist you in focusing your studies.

1. **BUSINESS PROCESS MANAGEMENT:**
   - INB320 Business Process Modelling
   - INB321 Business Process Management
   - INB322 Information Systems Consulting
   - INB123 Project Management Practice

2. **DATA WAREHOUSING:**
   - INB340 Database Design
   - INB341 Software Development With Oracle
   - INB342 Enterprise Data Mining and Data Analysis
   - INB343 Advanced Data Mining and Data Warehousing
   - INB344 Search Engine Technology

3. **DIGITAL ENVIRONMENTS:**
   - INB345 Mobile Devices
   - INB346 Enterprise 2.0
   - INB347 Web 2.0 Applications
   - INB335 Information Resources

4. **ENTERPRISE SYSTEMS:**
   - INB123 Project Management Practice
   - INB221 Technology Management
   - INB311 Enterprise Systems
   - INB312 Enterprise Systems Applications

5. **NETWORK SYSTEMS:**
   - INB350 Internet Protocols and Services
   - INB351 Unix Network Administration
   - INB352 Network Planning
   - INB353 Wireless and Mobile Networks

6. **SOFTWARE ENGINEERING:**
   - INB370 Software Development
   - INB371 Data Structures and Algorithms
   - INB372 Agile Software Development
   - INB374 Enterprise Software Architecture

7. **WEB TECHNOLOGIES:**
   - INB313 Electronic Commerce Site Development
   - INB373 Web Application Development
   - INB374 Enterprise Software Architecture
   - INB385 Multimedia Systems
   - INB386 Advanced Multimedia Systems

8. **UNGROUPED:**
   - INB204 Special Topic 1
   - INB205 Special Topic 2
   - INB304 Special Topic 3
   - INB305 Special Topic 4
   - INB306 Project 1
   - INB307 Project 2
   - INB308 Project 3
   - INB355 Cryptology and Protocols
   - INB365 Systems Programming
   - INB381 Modelling and Animation Techniques
   - INB382 Real Time Rendering Techniques
   - INB860 Computational Intelligence for Control and Embedded Systems

**IT Breadth Option Unit List**

You must complete four (4) units from the following list. You should not commence these units until you have completed INB101, INB102, INB103 and INB104.

- INB120 Corporate Systems
- INB210 Databases
- INB220 Business Analysis
- INB250 Foundations of Computer Science
- INB251 Networks
- INB255 Security
- INB270 Programming
- INB271 The Web
- INB272 Interaction Design
UNIT SYNOPSES

INB120 CORPORATE SYSTEMS
Corporate Systems Management is a growing area where people can make a difference to the way organisations and societies operate. In key business domains, such as Government, Health, Finance, Utilities and Primary Industries, Corporate Systems Managers play a vital role in directing the socio-technical systems that affect everyone's lives. This unit will help students to gain an overview of these major roles and key business domains in order to set the scene for their future studies and help them to match their emerging professional interests with potential career directions.

Antirequisites: ITB360  Credit points: 12  Contact hours: 3 per week  Campus: Gardens Point  Teaching period: 2011 SEM-1

INB205 SPECIAL TOPIC 2
This unit introduces computational techniques involving numerical simulations and visualization. These skills will be applied to solve problems in a range of application areas. The programming language MATLAB will be used, along with the simulation environment NetLogo.

Credit points: 12  Contact hours: 3 per week  Campus: Gardens Point  Teaching period: 2011 SEM-1 and 2011 SEM-2

INB210 DATABASES
Databases and database systems are essential items that support many aspects of everyday life in modern society. All graduates from a course in Information Technology will be expected by employers to understand the concepts and terminology of databases. The aim of this unit is to introduce you to the structure and role of databases in modern organisations.

Antirequisites: INN210  Equivalents: ITB004  Credit points: 12  Contact hours: 3 per week  Campus: Gardens Point  Teaching period: 2011 SEM-2

INB220 BUSINESS ANALYSIS
This unit is aims to give you an introduction to the role, knowledge, and skills required of a business analyst. This unit focuses on both the trades—tools and methods used by a business analyst, as well as the soft skills—creativity and communication, both of which are critical to successful business and requirements analysis. Through lectures, cases studies and role playing activities, you will develop basic knowledge and skills required for introductory business analysis (BA).

Antirequisites: INN220  Credit points: 12  Contact hours: 3 per week  Campus: Gardens Point  Teaching period: 2011 SEM-2

INB221 TECHNOLOGY MANAGEMENT
This unit presents operational, tactical and strategic insights that support the activities central to the leadership and management of technology. These insights include project management, organisational leadership, outsourcing, planning, governance and millennium technologies. Such insights are used to inform decision-making - the core skill of any manager. Technology managers must understand the factors influencing any decision point. This unit equips students for the challenges of management and to contribute to the decision-making faced by managers and the staff who advise on these issues.

Prerequisites: INB103 or ITB002 or INB120 or ITB360

Contact hours: 3 per week  Campus: Gardens Point  Teaching period: 2011 SEM-1
Antirequisites: ITN241, ITN251 and ITN366  
Equivalents: ITB366, ITB241  
Credit points: 12  
Contact hours: 3 per week  
Campus: Gardens Point  
Teaching period: 2011 SEM-1

INB250 FOUNDATIONS OF COMPUTER SCIENCE

Contemporary computer-based systems are built from a wide range of technologies working at different levels of abstraction, from microprocessor hardware, to operating system and application software, to entire communications networks. At each abstraction level different techniques are needed to understand emergent properties of the system. This unit introduces some of the foundational principles commonly used to reason about the behaviour of computer-dependent systems at different levels of abstraction. Most of the techniques are derived from the field of Discrete Mathematics and are the foundation of the discipline called Computer Science.

Assumed knowledge: Basic familiarity with set theory (Venn diagrams and set operators), elementary algebra (polynomial and summation expressions, exponents and logarithms, etc) and simple probability concepts (permutations and combinations).  
Credit points: 12  
Contact hours: 3 per week  
Campus: Gardens Point  
Teaching period: 2011 SEM-2

INB251 NETWORKS

Computer systems and communications networks are essential to the activities of modern organisations. When you graduate from a course in Information Technology, employers expect you to have a sound understanding of the terminology and concepts of computer systems, communications networks, and network services. This unit provides you with an introductory study of communications network technologies and network applications. The unit serves as an entry point to further specialised studies in the field of computer network systems.

Antirequisites: INN251  
Equivalents: ITB006  
Credit points: 12  
Contact hours: 3 per week  
Campus: Gardens Point  
Teaching period: 2011 SEM-2

INB255 SECURITY

This unit aims to give you an understanding of the major issues in information security. You will be able to identify critical information security concepts and determine the information security implications of interactions between entities. You will have knowledge of a range of techniques for protecting information, and understand the limitations of these techniques. You will be aware of international information security management standards.

Antirequisites: ITB161, ITB523, ITB623, ITN161 and INN255  
Equivalents: ITB730  
Credit points: 12  
Contact hours: 3 per week  
Campus: Gardens Point  
Teaching period: 2011 SEM-1

INB270 PROGRAMMING

This unit aims to give you a positive introduction to the skills required in solving computational problems and implementing solutions in a programming or scripting language. Although some theoretical aspects of computer programming are introduced briefly, the overall emphasis of the unit is programming practice. The unit emphasises generic programming concepts and related problem-solving strategies. The skills you learn in this unit will be applicable to a wide variety of commonly-used, industrially-significant programming and scripting languages.

Prerequisites: INB104 or ENB246  
Antirequisites: INN270  
Equivalents: ITB003  
Credit points: 12  
Contact hours: 3 per week  
Campus: Gardens Point  
Teaching period: 2011 SEM-1 and 2011 SEM-2

INB271 THE WEB

The aims of the unit are to give you a thorough understanding of what the web is, how it works and what it has to offer. Additionally, the unit aims to give you a general understanding and basic skills in developing dynamic web applications, including an appreciation of the variety of implementation technologies available. Through an understanding of how web technologies have evolved to date, you will appreciate the necessity for lifelong learning and become an insightful predictor of future developments in this area. You will learn to critically analyse technological alternatives in order to adapt to and innovate with technologies that presently do not exist. You will appreciate the business or organizational context within which web applications exist and be skilled in communicating within that environment. You will appreciate the social and ethical issues relating to web based systems including accessibility, globalization, privacy, and piracy.

Prerequisites: INB104  
Antirequisites: INB373 and ITB007 and ITB227 and ITN007 and ITN227  
Credit points: 12  
Contact hours: 3 per week  
Campus: Gardens Point  
Teaching period: 2011 SEM-1

INB272 INTERACTION DESIGN

The aim of this unit is to provide you with an understanding of the theory, practices and challenges associated with the development of creative interactive design and human computer interaction.

Prerequisites: INB103 or INB181  
Equivalents: ITB254  
Credit points: 12  
Contact hours: 3 per week  
Campus: Gardens Point  
Teaching period: 2011 SEM-2

INB304 SPECIAL TOPIC 3

Traditional Artificial Intelligence (AI) aims at satisfying the Turing test, that is, it aims at making computers
indistinguishable from humans. Computer games AI aims at giving Non-Player Characters (NPC) behavioural artefacts that complement a game narrative. Computer game AI is a special area of study that deals with algorithmic approaches to entertainment affects in NPC. Students will develop in this unit an understanding of problems, solutions and algorithms that generally defines the current state of computer game AI. The aim of this unit is to provide students with an intermediate level course in computer game AI that involves a set of the most relevant algorithms and their applications in the interactive entertainment and game industries.

**Prerequisites:** INB210 or ITB004 or INB122  
**Credit points:** 12  
**Contact hours:** 3 per week  
**Campus:** Gardens Point  
**Teaching period:** 2011 SEM-1 and 2011 SEM-2

**INB305 SPECIAL TOPIC 4**
INB305 Bgie Project Design Phase (P1) extends your work on the role, design, and plan of a computer game concept. The unit covers the conceptualisation and game design stages up to the game design pitch. If the project is given a green light by the assessment panel, it may be developed later in the P2 unit.

**Prerequisites:** INB371  
**Credit points:** 12  
**Contact hours:** 3 per week  
**Campus:** Gardens Point  
**Teaching period:** 2011 SEM-1 and 2011 SEM-2

**INB306 PROJECT 1**
This unit gives you the opportunity to apply, under appropriate guidance, the knowledge and skills gained in your course to date and to execute a substantial development project. The ability to apply technical knowledge and skills to real-life situations is essential for information technology professionals. A substantial project, under academic supervision, will develop your initiative and ability to apply your knowledge and skills in a professional capacity. Completing the project will also enable you to appreciate the complementary nature of the course material in total, particularly the need for careful project management.

**Prerequisites:** INB101, INB102, INB103, INB104 and INB201  
**Assumed knowledge:** As a minimum requirement you must have completed at least 132 credit points of IT units, including INB101, INB102, INB103, INB104, INB201, four breadth units, and at least two specialisation units.  
**Equivalents:** ITB230  
**Credit points:** 12  
**Contact hours:** 3 per week  
**Campus:** Gardens Point  
**Teaching period:** 2011 SEM-1, 2011 SEM-2 and 2011 SUM

**INB307 PROJECT 2**
This unit gives you the opportunity to apply, under appropriate guidance, the knowledge and skills gained in your course to date and to execute a substantial development project. The ability to apply technical knowledge and skills to real-life situations is essential for information technology professionals. A substantial project, under academic supervision, will develop your initiative and ability to apply your knowledge and skills in a professional capacity. Completing the project will also enable you to appreciate the complementary nature of the course material in total, particularly the need for careful project management.

**Assumed knowledge:** Assumed knowledge is completion of 192cp of which at least 144cp must be IT units  
**Equivalents:** ITB791  
**Credit points:** 12  
**Contact hours:** 3 per week  
**Campus:** Gardens Point  
**Teaching period:** 2011 SEM-1, 2011 SEM-2 and 2011 SUM

**INB308 PROJECT 3**
This unit gives you the opportunity to apply, under appropriate guidance, the knowledge and skills gained in your course to date and to execute a substantial development project. The ability to apply technical knowledge and skills to real-life situations is essential for information technology professionals. A substantial project, under academic supervision, will develop your initiative and ability to apply your knowledge and skills in a professional capacity. Completing the project will also enable you to appreciate the complementary nature of the course material in total, particularly the need for careful project management.

**Assumed knowledge:** Assumed knowledge is completion of 192 credit points of which at least 144 credit points must be for IT units  
**Credit points:** 12  
**Contact hours:** 3 per week  
**Campus:** Gardens Point  
**Teaching period:** 2011 SEM-1, 2011 SEM-2 and 2011 SUM

**INB311 ENTERPRISE SYSTEMS**
The unit presents and discusses the Enterprise Systems Lifecycle model, orienting students to the requirements of addressing total cost of ownership, change management requirements and process modelling requirements in order to achieve business benefits. Concepts of Enterprise Systems success and associated enablers and barriers are also introduced. This unit introduces the technical architecture of complex 3-tiered client server environments. It seeks to show how an integrated complex database environment meets common business needs, and yet fails to meet the total Information Systems requirements.

**Antirequisites:** INN311  
**Credit points:** 12  
**Contact hours:** 3 per week  
**Campus:** Gardens Point  
**Teaching period:** 2011 SEM-1, 2011 SEM-2 and 2011 SUM
INB312 ENTERPRISE SYSTEMS APPLICATIONS
The aim of this unit is to introduce one of the more complex and comprehensive Enterprise Systems applications. This unit introduces the business perspective and application processes of modules (such as FI, CO, PP, MM and S&D) and investigates the support provided by these systems and the integration between modules by following some of the major processes in a business. The unit enables you to experience both the business analyst view and the user's view of the system across a number of business processes.

Antirequisites: ITB233, INN312    Credit points: 12    Contact hours: 3 per week    Campus: Gardens Point    Teaching period: 2011 SEM-2

INB313 ELECTRONIC COMMERCE SITE DEVELOPMENT
This unit will enable you to specify, design, implement and maintain effective e-commerce applications. You will obtain a broad understanding of the potential of e-commerce and how it can be employed to benefit an organisation. You will get direct experience of creating an e-commerce storefront following a business to business (B to B) or business to consumer (B to C) model. You will also have an understanding of the computer systems that underpin e-commerce including payment systems and secure transactions.

Equivalents: ITB260    Credit points: 12    Contact hours: 3 per week    Campus: Gardens Point    Teaching period: 2011 SEM-2

INB320 BUSINESS PROCESS MODELLING
The aim of this unit is to introduce you to modern methodologies of business process modelling. A main objective is to increase your awareness of the conceptual foundation of modelling and for the capabilities of BPMN and available tools. You will learn how to use grammars and tools to build, maintain and communicate practically relevant process models.

Equivalents: ITB298    Credit points: 12    Contact hours: 3 per week    Campus: Gardens Point    Teaching period: 2011 SEM-2

INB321 BUSINESS PROCESS MANAGEMENT
The aim of this unit is to introduce you to modern methodologies of Business Process Management. A main objective is to increase your awareness of the close link between business requirements and IT capabilities, and the related fundamental role of business processes. This unit also seeks to develop logical thinking, an appreciation for conceptual models, and the capability to understand and deal with complex systems.

Antirequisites: INN321    Credit points: 12    Contact hours: 3 per week    Campus: Gardens Point    Teaching period: 2011 SEM-1

INB322 INFORMATION SYSTEMS CONSULTING
The aim of the unit is to develop your skills in the consulting engagement process. This unit will give you an appreciation of the management of consulting practices and an understanding of the consulting sector generally. This unit presents the tactical and strategic issues involved in management consulting, and in particular: client engagement. In the unit there is an emphasis on Information Systems (IS) related work. IS constitutes a substantial portion of consulting activity and cuts across all areas of business expertise. The unit examines the dynamics of IS consulting within the context of large consulting firms and familiarises students with the consulting engagement lifecycle.

Antirequisites: ITB264, ITN264    Assumed knowledge: Completion of 96 credit points of an Undergraduate study is assumed knowledge    Credit points: 12    Contact hours: 3 per week    Campus: Gardens Point    Teaching period: 2011 SEM-1

INB335 INFORMATION RESOURCES
This unit will help you to understand the structure of the information environment, to reflect upon the information resources you discover, and to develop the ability to find appropriate information for future problem solving. You will develop your skills in identifying, accessing, evaluating and retrieving information resources to meet specific information needs. The unit will also help you develop skills in teamwork and oral and written communication.

Antirequisites: INN335    Equivalents: ITB322    Credit points: 12    Contact hours: 3 per week    Campus: Gardens Point    Teaching period: 2011 SEM-2

INB340 DATABASE DESIGN
The aim of this unit is to help you develop your knowledge, understand a formal specification tool (ORM) for modelling information systems unambiguously and to apply this formal technique to conceptualise information systems found in many real world application domains.

Prerequisites: INB210 or ITB004    Antirequisites: ITB229    Credit points: 12    Contact hours: 3 per week    Campus: Gardens Point    Teaching period: 2011 SEM-1

INB341 SOFTWARE DEVELOPMENT WITH ORACLE
This unit aims to develop a sound understanding of database creation, installation, administration, management,
security, back up/recovery and application development. The unit aims to develop practical skills in each of these elements, using appropriate Oracle software.

It is expected that students undertaking this unit will have prior knowledge of relational database terminology and concepts, be thoroughly able to develop SQL for querying, updating and creating tables, and have a sound knowledge of database design.

**Prerequisites:** INB210 or ITB004 or INB122  
**Equivalents:** ITB223  
**Credit points:** 12  
**Contact hours:** 3 per week  
**Campus:** Gardens Point  
**Teaching period:** 2011 SEM-2

**INB342 ENTERPRISE DATA MINING AND DATA ANALYSIS**

This unit will provide a comprehensive theoretical coverage of various topics in data and web mining. In addition there will be a significant practical component using hands on tools to solve real-world problems. Specifically, we will consider techniques from machine learning, data mining, text mining, and information retrieval to extract useful knowledge from data which are used for business intelligence, document databases, site management, personalization, and user profiling. This unit will first cover a detailed overview of the mining process and techniques, and then concentrate on applications of these techniques to web, e-commerce, document databases and data from advanced applications.

**Prerequisites:** INB122 or INB210 or INB340 or AYB114  
**Antirequisites:** INN342  
**Equivalents:** ITB239  
**Credit points:** 12  
**Contact hours:** 3 per week  
**Campus:** Gardens Point  
**Teaching period:** 2011 SEM-2

**INB343 ADVANCED DATA MINING AND DATA WAREHOUSING**

Data warehousing and mining have been well recognized as the dominating techniques for using databases in the future. This unit discusses the concepts, structures and algorithms of data warehousing and mining, e.g., data architecture and quality, data warehouse and data mart, data cubes, OLAP, patterns, association rules and decision tables. Through this study, students will be able to demonstrate knowledge and skills of designing, developing and implementing data warehousing components in SQL environments. It also enables students to design systems and tools that provide services to data management and analysis, such as data warehouses, data mining tools, business intelligence based systems, smart information use systems, and data processing systems.

**Prerequisites:** INB210  
**Antirequisites:** INN343  
**Credit points:** 12  
**Contact hours:** 3 per week  
**Campus:** Gardens Point  
**Teaching period:** 2011 SEM-2

**INB344 SEARCH ENGINE TECHNOLOGY**

**Prerequisites:** INB371  
**Assumed knowledge:** Intermediate programming experience with intermediate-level knowledge of data structures and algorithms  
**Credit points:** 12  
**Teaching period:** 2011 SEM-1

**INB345 MOBILE DEVICES**

This unit provides the opportunity for exploring new and emerging mobile devices and wireless technology including iPhone, Netbook, 3G, WiMax, and RFID. Students will critically review and understand how they can be used for current contexts such as government, business, education and social community, as well as emerging 'wilderness' environments with no power and wired communication. Students will appreciate the impacts of these devices and be inspired for the current and future opportunities in ICT usage trends.

**Credit points:** 12  
**Contact hours:** 3 per week  
**Campus:** Gardens Point  
**Teaching period:** 2011 SEM-1

**INB346 ENTERPRISE 2.0**

Web technologies and applications are reshaping contemporary organisations. By 2009 it has been predicted that more than 80% of organisations will have blogs and more than 50% of organisations will have wikis as part of their business solutions and strategies. Furthermore, with the advent of Cloud Computing, many companies are outsourcing key business functions to external web applications. The successful contemporary organisation requires expertise in not just business and management practice but in the critical design, use and consequences of new and emerging technologies. This unit will explore the ways in which IT has impacted on how organisations design and deliver activities and services internally and externally. The aim of this unit is to provide you with an understanding of how web 2.0 is changing the way contemporary organisations function.

**Credit points:** 12  
**Contact hours:** 3 per week  
**Campus:** Gardens Point  
**Teaching period:** 2011 SEM-2

**INB347 WEB 2.0 APPLICATIONS**

Web 2.0 applications enable the user to be control. The unit will provide the opportunity for students to explore web 2.0 applications including blogs, wikis, social networking, social tagging, podcasts, gaming, storytelling and virtual worlds such as second life. Students will critically consider the many and varied web applications and how they can be used in different contexts such as government, small and medium size businesses, non-profit organisations, educational institutions and community groups.

**Credit points:** 12  
**Contact hours:** 3 per week  
**Campus:**
INB350 INTERNET PROTOCOLS AND SERVICES
An understanding of the theoretical and practical concepts of network protocols and services is highly useful and relevant to network engineers and others working in the Information Processing industries. This unit introduces you to Internet protocols and the design, implementation and operation of network based applications. Theory and practical skills taught in this unit will be useful if you intend undertaking further networking units.

**Prerequisites:** INB251 or ITB006 or ITB510
**Antirequisites:** ITB624, ITB629, ITB720, ITN525, ITN667, ITN720
**Credit points:** 12  **Contact hours:** 3 per week
**Campus:** Gardens Point  **Teaching period:** 2011 SEM-1

INB351 UNIX NETWORK ADMINISTRATION
The aim of this unit is to provide students with a working knowledge of the technical aspects and theory of network administration and management. The unit uses the Unix environment as the learning platform for attaining technical skills and for the development of problem solving skills necessary to be a successful networking professional.

**Prerequisites:** INB350  **Equivalents:** ITB721, ITB625, ITB535, ITB525  **Credit points:** 12  **Contact hours:** 3 per week  **Campus:** Gardens Point  **Teaching period:** 2011 SEM-2

INB352 NETWORK PLANNING
The unit draws together subject matter from a number of different networking-related areas. The aim of the unit is to assemble the previously acquired knowledge and techniques and apply it in a cohesive fashion to the task of network planning.

**Prerequisites:** INB350  **Antirequisites:** ITB551, ITB628, ITB722, INN352, ITN551, ITN722, ENN523  **Credit points:** 12  **Contact hours:** 3 per week  **Campus:** Gardens Point  **Teaching period:** 2011 SEM-2

INB353 WIRELESS AND MOBILE NETWORKS
This unit provides you with the skills to be able to design and understand the issues involved with different types of wireless communications systems. It develops your knowledge of Wide Area Networks (WANs), Local Area Networks (LANs) and Personal Area Networks (PANs) as well as skills in programming for mobile handsets. You will also develop knowledge of the different types of wireless communications technologies available and when each is most applicable in a particular situation.

**Prerequisites:** INB251 or ITB006  **Antirequisites:** ITN723

Assumed knowledge: Networks or equivalent networking knowledge is assumed knowledge  **Equivalents:** ITB723

Credit points: 12  **Contact hours:** 3 per week  **Campus:** Gardens Point  **Teaching period:** 2011 SEM-1

INB355 CRYPTOGRAPHY AND PROTOCOLS
Cryptography techniques are widely used to implement computer and network security. As an IT security professional you may be required either to evaluate or implement information systems using cryptographic algorithms and protocols. This elective unit covers the main cryptographic technical concepts including encryption, digital signatures and cryptographic protocols.

**Prerequisites:** ITB646, ITB548, ITB566  **Assumed knowledge:** Maths B or equivalent is assumed knowledge.
**Equivalents:** ITB732  **Credit points:** 12  **Contact hours:** 3 per week  **Campus:** Gardens Point  **Teaching period:** 2011 SEM-1

INB365 SYSTEMS PROGRAMMING
Systems programming is an essential part of any computer-science education. This unit uses operating system concepts to teach the foundations of systems programming and advanced concepts for producing softwares that provide services to computer hardware. Through this study, you will be able to demonstrate knowledge of the principles and techniques of process management, memory and file management, protection & security, and distributed systems.

**Prerequisites:** INB270 or ITB003 or INB371  **Antirequisites:** ITB745, ITB706, INN365  **Assumed knowledge:** Fundamentals of computer architecture; high level programming languages (such as C, C++, Java, Python) is assumed knowledge.  **Credit points:** 12  **Contact hours:** 3 per week  **Campus:** Gardens Point  **Teaching period:** 2011 SEM-2

INB370 SOFTWARE DEVELOPMENT
Understanding software development is an integral part of the IT industry for software engineers.? Software development relies on object technologies, programming techniques and numerous code libraries provided by language developers and third party vendors.? Integrated Development Environments, unit testing frameworks, automated and continuous build tools and versioning systems are all becoming part of the tool set modern software developers must be familiar with.? This unit is designed to introduce these technologies and techniques to show how software can be rapidly developed.

**Prerequisites:** INB270 or ITB003  **Credit points:** 12  **Contact hours:** 3 per week  **Campus:** Gardens Point  **Teaching period:** 2011 SEM-1
INB371 DATA STRUCTURES AND ALGORITHMS
The purpose of this unit is to ensure that you have a sound knowledge of modern programming techniques and their use in providing medium-scale software solutions. This unit will teach you to decompose a problem and produce a modular solution to a programming task. The principles to analyse algorithms for efficiency will also be introduced. In addition, you will acquire the necessary skills for you to use the tools available in common development environments, such as Microsoft Visual Studio.

Prerequisites: INB270 or ITB003  
Antirequisites:  
ITB711, ITB702, INN371  
Credit points: 12  
Contact hours: 3 per week  
Campus: Gardens Point  
Teaching period: 2011 SEM-1

INB372 AGILE SOFTWARE DEVELOPMENT
This unit introduces you to the software development process. You will look at each of the major activities involved in developing a software system. You will also learn how to manage and control the software development process for a large project when a number of team members are involved in the development. This unit develops the professional practice of working on large software systems.

Prerequisites: INB370  
Antirequisites: INN372, ITB612, ITB712  
Assumed knowledge: Good programming, debugging, testing and software development skills.  
Credit points: 12  
Contact hours: 3 per week  
Campus: Gardens Point  
Teaching period: 2011 SEM-2

INB373 WEB APPLICATION DEVELOPMENT
This unit will provide you with an understanding of the issues, structure and technologies used for developing web-based systems. The unit will provide you with the theoretical and practical skills needed to develop enterprise critical applications designed with an n-tier architecture using state of the art technologies. A comparative technology approach is taken, including an analysis of how web technologies have evolved to date, in order to identify common themes and to better enable you to comprehend and critically evaluate future web technology offerings.

Prerequisites: INB271 or ITB007  
Antirequisites: INN271, INN373  
Equivalents: ITB716 and ITN716  
Credit points: 12  
Contact hours: 3 per week  
Campus: Gardens Point  
Teaching period: 2011 SEM-1

INB374 ENTERPRISE SOFTWARE ARCHITECTURE
This unit aims to introduce you to the field of enterprise architecture. It attempts to give you a grounding in the basic knowledge and skills required by an enterprise architect. This includes a solid understanding of the IT challenges currently facing medium to large size organizations, the theory and technologies currently used to address them and an appreciation of the business imperative for which they are utilized.

Prerequisites: INB270 or ITB003  
Equivalents: ITB717  
Credit points: 12  
Contact hours: 3 per week  
Campus: Gardens Point  
Teaching period: 2011 SEM-2

INB381 MODELLING AND ANIMATION TECHNIQUES
The development of computer graphics tools is a significant application within the IT, Games and related industries, relying heavily on software engineering methodologies. These tools, such as CAD systems, 3D modelling systems and games engines, are used in such industries as advertising, engineering, manufacturing, simulation for education and training, computer games, film special effects, etc. Modelling techniques are intrinsic to a 3D graphics system, especially one used for real time animation. With increased CPU and GPU power, the ability to animate in real time is allowing more sophisticated interaction and the merger of games/simulation and film. The unit will provide you with the knowledge and skills to use an industry standard graphics API to implement graphics applications and to develop a basic real time animation system using an industry standard language.

Prerequisites: INB371 and MAB281  
Equivalents: ITB746  
Credit points: 12  
Contact hours: 3 per week  
Campus: Gardens Point  
Teaching period: 2011 SEM-2

INB382 REAL TIME RENDERING TECHNIQUES
This unit will provide you with knowledge and skills in basic to advanced techniques in real-time rendering using shading languages. You will be able to implement a high-quality real-time rendering system in an industry standard API.

Prerequisites: INB371, INB381 and MAB281  
Antirequisites: ITB648 and ITB649  
Equivalents: ITB747  
Credit points: 12  
Contact hours: 3 per week  
Campus: Gardens Point  
Teaching period: 2011 SEM-1

INB385 MULTIMEDIA SYSTEMS
This unit will explore the concepts underpinning multimedia systems and the role played by these technologies in the overall knowledge of a computer professional. You will learn to: design and develop different kinds of interactive multimedia applications; understand the bank of knowledge in cultural developments surrounding the emergence of multimedia technologies; analyse design and processes that contribute to the production of a creative work, using contemporary hardware and software technologies; develop the creative potential of temporal media forms and their
placement and use within new media works; understand principles and conventions associated with the interpretation and production of meaning through interactive visual representation.

**Prerequisites:** INB103 or ITB002  
**Antirequisites:** ITB257

**Credit points:** 12  
**Contact hours:** 3 per week  
**Campus:** Gardens Point  
**Teaching period:** 2011 SEM-1

### INB386 ADVANCED MULTIMEDIA SYSTEMS

This advanced level unit will give you high level design and development skills in some of the current and emerging areas of the new media. Web delivered applications, stand-alone systems and installations will be included. It will endeavour to give you an in-depth understanding of interactive Multimedia Systems. You will be given the theoretical basis and practical skills to motivate you in the design and creation of a state-of-the-art system in this discipline. In the process it will encourage a professional team approach appropriate to the industry environment.

**Prerequisites:** INB385 (Special considerations may apply)  
**Equivalents:** ITB259, ITN259  
**Credit points:** 12  
**Contact hours:** 3 per week  
**Campus:** Gardens Point  
**Teaching period:** 2011 SEM-2

### INB860 COMPUTATIONAL INTELLIGENCE FOR CONTROL AND EMBEDDED SYSTEMS

This is a specialisation unit in the area of Infomechatronics that introduces five methods from the field of computational intelligence and relates them to applications on real time control and embedded systems. The methods are: Knowledge Base Systems, Fuzzy Control, Neural Networks, Reinforcement Learning and Evolutionary Computation. The unit is also intended to teach the specific design and programming skills that will enable you to solve problems using computational intelligence methods in real-time embedded systems. It is assumed that you already have knowledge of programming.

**Assumed knowledge:** Knowledge of a programming language like Python, Java or C is assumed.  
**Equivalents:** ITB847  
**Credit points:** 12  
**Contact hours:** 3 per week  
**Campus:** Gardens Point  
**Teaching period:** 2011 SEM-1