Information Technology
Master | Graduate Diploma | Graduate Certificate

School of Information Technologies
Faculty of Engineering and IT
Enrolment Guide 2011
Master of IT
Graduate Diploma in IT
Graduate Certificate in IT

CONTENTS

➢ WELCOME 3
➢ SEMESTER DATES 4
SEMESTER 1 2011 4
SEMESTER 2 2011 4
PUBLIC HOLIDAYS 4
➢ CONTACT INFORMATION 5
GRADUATE SCHOOL OF ENGINEERING & IT 5
SCHOOL OF INFORMATION TECHNOLOGIES 5
Faculty Handbook 5
University Services 5
➢ STAFF 6
Professor & Head of School 6
Postgraduate Coursework Director 6
Professors 6
Associate Professors 6
Senior Lecturers 6
Lecturers 6
➢ Unit of Study Lecturers – Semester 2 2011 7
➢ OVERVIEW OF INFORMATION TECHNOLOGY EDUCATION AT THE UNIVERSITY OF SYDNEY 7
➢ STUDENT ADMINISTRATIVE PROCESSES AND PROCEDURES 8
Confirmation of Enrolment 8
Payment of Fees 8
FEE-HELP (Higher Education Loan Program – Local Students) 8
Student Union Subscriptions 8
Communication Channels 9
Registration for MyUni 9
Variation of Enrolment - Changing Units of Study 9
Deferral of Course 9
Changing a Course of Study 10
Suspension, Absence, Time Away and Complete Away from a Course 10
Further Suspension or Discontinuation of a Course 10
Recommencing a Course 10
Discontinuation of Course 11
Refunds for Withdrawals and Discontinuations (Local Students) 11
Refunds for Withdrawals and Discontinuations (International Students) 11
➢ Academic Honesty 12
➢ Attendance at Lectures, Tutorials and Laboratories 13
➢ Special Consideration due to Illness or Misadventure 13
Process for Applying for Special Consideration 14
➢ Assessment Criteria 15
EXAMINATIONS 16
Perusal of Examination Scripts 16
Appealing Against Academic Decision 16

GRADUATION 17

FACILITIES 17
Access to School of Information Technologies Building 17
The Postgraduate Coursework Workroom 17
Security Swipe Card 17
Computer Access 17
The SciTech Library 18

Master of Information Technology | Graduate Diploma in Information Technology | Graduate Certificate in Information Technology 19
Course Overview 19
Course Outcomes 19
Admission Requirements 19
Course Requirements 19
Graduate Certificate in Information Technology: 19
Credit for previous study 19
Progression 20
Units of study available in 2011 20
Majors – rules and core units for 2011 20

MIT Majors: Tables 29
- Database Management Systems Major 29
- Software Engineering Major 29
- Computer Networks Major 29
- Multimedia Technology Major 30
- Computer Science Major 30
- Telecommunications Engineering Major 31
- Business Information Systems Major 32
- Project Management Major 32
- Health Informatics Major 33
Welcome to the School of Information Technologies.

Information Technology (IT) is a fast moving field that still feels as exciting and vibrant as 20 years ago. The first personal computer was introduced just 35 years ago – and thanks to Moore's law, its computational power is nowadays easily outperformed by any modern mobile phone. Only twenty years ago, the World Wide Web was invented, which now connects an estimated 2 billion users worldwide. And just seven years ago, a website called Facebook launched, which is now the world's most popular social networking site with an estimated 600 million active users.

There is virtually no part of our life that is not affected by IT – and there will always be a demand for highly skilled, well qualified IT professionals. For more than a decade, the IT industry outperformed most of the traditional industry sectors – and will continue to do so. Smart usage of IT is often the key to improve business processes and to create new opportunities. Can there be a better time to improve your technical qualifications?

Our Master of Information Technology (MIT) course provides high quality teaching in a broad range of IT subjects. Students taking this course have an excellent opportunity to extend their in-depth knowledge in specialist areas – such as Internet technologies or enterprise-scale data management – and gain access to leading edge research and latest developments in IT. Our goal is to equip students with an IT qualification that is not only relevant today, but will remain relevant throughout your working career. To this end, the course structure and course content is under constant review and improvement. The course presented to you in 2011 is the result of many years refinement based on feedback from industry, former students, and professional associations. We hope you will enjoy and value your studies, and we look forward to receiving your feedback too.

This booklet has been designed to provide our Master of Information Technology students with important information about their course and on studying at the University of Sydney. It also outlines the general policies and procedures that you will need to be familiar with in order to progress with your studies.

I am sure that you will enjoy your time with us and I wish you every success with your studies.

Dr Uwe Roehm  
Director – Postgraduate Coursework  
School of Information Technologies

N. B. The information contained in this handbook does not have the force of regulations – these may be found, as appropriate, in the By-laws and Resolutions relating to the Faculties. If there is any conflict between the information in this document and that set out in the above documents, the latter will apply. Reference should be made to the University Calendar and the Faculty Handbooks.
Students are required to be available between the start of lectures and the end of semester, except during official recess periods (in particular, they must be available at all times during “study vacations” and examination periods).

**SEMESTER DATES**

Students are required to be available between the start of lectures and the end of semester, except during official recess periods (in particular, they must be available at all times during “study vacations” and examination periods).

**SEMESTER 1 2011**
Lectures begin Monday 28 February  
Mid-semester recess Friday 22 April to Friday 29 April  
Study vacation week Monday 6 June to Friday 10 June  
Examination period Tuesday 14 June to Saturday 25 June  
**Last dates for withdrawal or discontinuation**
Last day to add a unit Friday 11 March  
Last day for withdrawal Thursday 31 March  
Last day to discontinue without failure (DNF) Friday 15 April  
Last day to discontinue (Discontinued – Fail) Friday 3 June

**SEMESTER 2 2011**
Lectures begin Monday 25 July  
Mid-semester recess Monday 26 September to Friday 30 September  
Study vacation week Monday 31 October to Friday 4 November  
Examination period Monday 7 November to Saturday 19 November  
**Last dates for withdrawal or discontinuation**
Last day to add a unit Friday 5 August  
Last day for withdrawal Monday 31 August  
Last day to discontinue without failure (DNF) Friday 9 September  
Last day to discontinue (Discontinued - Fail) Friday 28 October

**PUBLIC HOLIDAYS**

Australia Day Wednesday 26 January  
Good Friday Friday 22 April  
Easter Monday Tuesday 26 April  
Anzac Day Monday 25 April  
Queen's Birthday Monday 13 June  
Labour Day Monday 3 October
CONTACT INFORMATION

GRADUATE SCHOOL OF ENGINEERING & IT

Room 110 111 Link Building J13
University of Sydney
NSW 2006

Telephone: (02) 9351 87197084
Facsimile: (02) 9351 7082
EMAIL: engineering.postgraduate@sydney.edu.au
Website: http://sydney.edu.au/engineering/gse/index.shtml

Office Hours
Monday – Friday 10:00am – 1:00pm
2:30am – 4:00pm

SCHOOL OF INFORMATION TECHNOLOGIES

School of Information Technologies Bldg J12
Corner of City Road and Cleveland Street
University of Sydney, NSW 2006

Telephone: (02) 9351 3423
Facsimile: (02) 9351 3838
Email: mit@it.usyd.edu.au
Website: http://sydney.edu.au/engineering/it/

Office Hours
Monday – Friday 9:30am – 1:00pm
2:00pm – 5:00pm

Faculty Handbook


The Faculty of Engineering Handbook is an essential resource for all students. It provides further information and clear guidelines and advice to assist in successful progression through your postgraduate studies, including detailed information on award course requirements.

University Services

Please find below a list of services the University of Sydney offers. For further information please view the listed web addresses:

International Office
http://sydney.edu.au/internationaloffice/

Student Centre
http://sydney.edu.au/current_students/student_administration/

Accommodation Services

Careers Centre
http://sydney.edu.au/careers/

Counselling Service
http://sydney.edu.au/stuserv/counselling/

Financial Assistance

Sydney University Home Page
http://sydney.edu.au/

Sydney University Postgraduate Representative Association (SUPRA)
http://www.supra.usyd.edu.au/

University of Sydney Library

The Learning Centre

The Mathematics Learning Centre

Disability Services

Child Care Information Office
More details on our staff members go to http://sydney.edu.au/engineering/it/about/people/academics.shtml
OVERVIEW OF INFORMATION TECHNOLOGY EDUCATION AT THE UNIVERSITY OF SYDNEY

The School of Information Technologies within the Faculty of Engineering and IT is internationally known for excellence in both cutting-edge research and innovative teaching. As a postgraduate coursework student, you will have access to the largest library in the southern hemisphere, state of the art resources and exceptional teaching facilities. We hope that you will find your time with us beneficial and challenging.

The study of IT at the School is based on foundations that build skills in life-long learning, problem-solving, cooperative work in groups and (for Software Development) proficiency in object-oriented software development.

The MIT course is designed to provide students not only with a wide range of choice in units of study but also students can now select from eleven avenues from which to major in.

A special strength of the University’s IT education is the diverse set of links which we have with industry partners, who help us keep the curriculum ahead of the technology curve:

ACS Accreditation: The MIT is accredited by the Australian Computer Society (ACS) at Professional Level. A person who completes a Professional Level qualification is eligible to become an Associate Member of the ACS immediately, and a full Professional Member after relevant information technology experience of 4 years.
STUDENT ADMINISTRATIVE PROCESSES AND PROCEDURES

The following is a selection of processes and procedures that students need to be familiar with in order to progress smoothly with their course of study.

Confirmation of Enrolment
Within 10 days of enrolment, a Confirmation of Enrolment form is posted to each student by the University’s Student Centre. A Confirmation of Enrolment is also sent automatically to students each time they make a variation of their enrolment. Please ensure that your address on the student system is always up to date. If you change addresses, please make sure you also officially change your address with the University. You can do this through the MyUni website (http://sydney.edu.au/current_students/) or go to the University’s Student Centre and fill out a change of address form; otherwise, the University will send your information to the incorrect address.

If you have enrolled or varied your enrolment and do not receive a Confirmation of Enrolment, you should check your enrolment record on the MyUni website to confirm that your variation or enrolment has been processed. If it has not, please contact the Student Centre to confirm that they have the correct address details recorded for you and to request a replacement Confirmation of Enrolment.

Payment of Fees
Course fees for each unit of study to be taken must be paid prior to each semester.

Local students: refer to the Student Centre for further information:
http://sydney.edu.au/current_students/student_administration/

International students: refer to the International office for further information:
http://sydney.edu.au/internationaloffice/

FEE-HELP (Higher Education Loan Program – Local Students)
FEE-HELP is a Commonwealth Government scheme that provides full or partial loans for tuition fees for local students enrolling in fee-paying postgraduate award courses. Comprehensive information on the scheme is available from the Going to Uni website:
www.goingtouni.gov.au/Main/FeesLoansAndScholarships/Postgraduate/Default.htm

For a description of the requirements and conditions for eligibility for FEE-HELP, please go to the following webpage:
www.goingtouni.gov.au/Main/FeesLoansAndScholarships/Undergraduate/FullFeesAndFEE-HELP/EligibilityRequirements.htm

Alternatively please call the FEE-HELP enquiry line on 1800 020 108 or the HECS / Fees Section of the Student Centre on 8627 8239.

Student Union Subscriptions
Membership of the University Student Union is voluntary. For those students who choose to become members of the Union, the subscription fee covers the cost of membership to the University of Sydney Union and two other organisations: the SRC (if undergraduate) or SUPRA (if postgraduate); and Sydney University Sport (SU Sport). The University collects these fees and distributes them to the four student organisations. Each organisation has a different fee refund/exemption policy.

For details of the fees that are applicable for 2011, and information on the benefits available to Union members, refer to the University of Sydney Union website: http://www.usydunion.com/.
Communication Channels
From time to time, the School needs to inform students about important matters, e.g. changes to tutorial locations or deadlines for submitting assignments. This information will be posted on the school and unit of study websites. These sites should be checked regularly (at least once every week). Your university email account should be checked regularly (at least twice weekly) and also the email accounts given to you by the School of IT.

Any student who has suggestions, complaints or comments about any aspect of the unit should tell the lecturer (or they may ask the student representative to talk to the lecturer). In a case where the lecturer is unable to resolve matters, the Director of Postgraduate Study is the next authority. Students are also welcome to attend one of the School's liaison meetings (one takes place each semester) and raise the issue there.

Registration for MyUni
MyUni is a web based system that contains much that you will need to use as a student at the University of Sydney. The first time you login to MyUni you will be given the opportunity to change some of your details to suit your needs.

- When can I Register?
  To register onto MyUni you need your UniKey and password. For most students, your UniKey is set up before your enrolment papers are printed, and the details are included on your enrolment page. If you have no UniKey, please see the lab support staff members for assistance.

- Steps to Register to MyUni
  2. If this is your first login to MyUni you will be taken to the “User Authentication” page.
  3. Enter your UniKey and password, then click “Continue”. Click “Continue” again if you see a Security Information window.
  4. Click “I Agree” after reading the conditions of use of MyUni.
  5. You now see the “New User Registration” page. You may select your preferred Title, Faculty and choose to keep your email address private. REMEMBER: If you register with the incorrect Faculty, and want to change it, you must see the lab support staff member to have it changed.
  6. Check that the student number listed is your own. If it is incorrect, please see the lab support staff member.
  7. Click on “Continue”. If the browser asks whether to accept cookies from MyUni, accept them.
  8. Congratulations, you have now successfully registered for MyUni.
  9. Clicking “Continue” will take you to your MyUni Screen.

Variation of Enrolment - Changing Units of Study
Students are able to vary their enrolment in Semester 2 up until the following dates:

- Last day to add a unit: Friday 5 August
- Last day for withdrawal: Wednesday 31 August – Census Date

Once the above dates have passed, students will not be allowed to add/withdraw from units of study so care should be taken to ensure all changes are made ahead of these dates. Variations can be made online through MyUni.

Project Units of Study – approval must be sought from Dr Uwe Roehm – Director, Postgraduate Coursework before a student can enrol/withdraw from project units of study. The above dates still apply. Complete the form and submit to the Postgraduate Coursework Administrator, Cecille Faraizi for processing.

Students are reminded that if they were working with a group of students it is essential to inform them and the group’s tutor or supervisor that you are leaving the unit of study.

Deferral of Course
If you have not commenced your award course and wish to defer commencement of the course you must send the Faculty office a letter requesting a deferral of offer and nominate a new commencement date. You will receive an acknowledgment letter from the Faculty confirming the duration of deferral approved and specifying a date to contact the Faculty Office in order to arrange a time to enrol.
Changing a Course of Study
There are three levels of postgraduate coursework award courses in the Information Technology and Information Technology Management articulated programs: Graduate Certificate, Graduate Diploma and Masters by coursework.

Master → Diploma → Certificate

If you are looking to change from the Master to the Diploma course, or the Diploma to the Certificate course, you will need to do the following:

Download the form from the Graduate School of Engineering and IT (GSE&IT) website: http://www.eng.usyd.edu.au/gse/documents/transfer_degree_application.pdf

Complete the form and submit to the Postgraduate Coursework Administrator, Cecille Faraizi, who will forward it to the Postgraduate Director, Dr Uwe Roehm, for approval. Dr Roehm may wish to discuss the changes you are proposing to make to your course of study. If approved, the Transfer Candidature form will be forwarded to the GSE&IT for processing.

Certificate → Diploma → Master

If you are looking to change from the Certificate to the Diploma course, or the Diploma to the Master course, you will need to do the following:

Complete a new application for the course you now want to undertake. Please check that you satisfy the admission requirements for the course you are looking to change to before submitting your new application. Submit your application, attaching an up-to-date copy of your transcript, to the GSE&IT. Your application will be assessed and you will be notified by post of the Faculty’s decision.

Suspension, Absence, Time Away and Complete Away from a Course
Students who have commenced their course and now wish to take a suspension or leave of absence from their course of study must first submit a completed ‘Request for Changes in Enrolment’ form to the School. This form can be obtained from the GSE&IT website: http://sydney.edu.au/engineering/gse/documents/suspend_discontinue_form.pdf (click “Suspend or Withdraw from Candidature”).

Your completed form should be submitted to the Postgraduate Director, Dr Uwe Roehm, in the School of Information Technologies, via the Postgraduate Coursework Administrator, Cecille Faraizi. Dr Roehm will assess the form before forwarding to the Faculty for processing.

You will receive an acknowledgement letter confirming the Faculty’s decision on your application. If your request is approved, the letter will confirm the duration of suspension approved and will specify the date by which you must notify the Faculty Office to re-enrol.

In order to recommence your course, further suspend your course or ultimately discontinue your course after your initial application has been approved, please see following section.

Further Suspension or Discontinuation of a Course
To suspend for a further period, or discontinue from your course entirely, fill in the ‘Request for Changes in Enrolment’ available on the GSE&IT website: http://sydney.edu.au/engineering/gse/current/forms.shtml. Submit your application promptly to the Postgraduate Coursework Administrator, Cecille Faraizi, who will then pass it to the Postgraduate Director, Dr Uwe Roehm, in the School of Information Technologies.

Dr Roehm will assess the form before forwarding to the Faculty for processing. The Faculty will then notify you, via post, of the status of your application.

Recommending a Course
After a period of suspension, please notify the Graduate School of Engineering and IT of your intention to recommence your studies. An email to engineering.postgraduate@sydney.edu.au is adequate. The earlier this is done the better.

If you suspended your studies without having notified the Faculty correctly, you may have been deemed to Discontinue. In this case, you may need to reapply for the course. The GSE&IT will assist you in this process
Discontinuation of Course
Students looking to withdraw from, or discontinue, their course of study must first submit a completed ‘Request for Changes in Enrolment’ available on the GSE&IT website:
Submit your completed form to the Postgraduate Director, Dr Uwe Roehm, in the School of Information Technologies. Dr Roehm will assess the form before forwarding to the Faculty for processing. The Faculty will then notify you, via post, of the status of your application.

Refunds for Withdrawals and Discontinuations (Local Students)
If you withdraw from your award course before the census date (for Semester 1 2011 this date is Thursday 31 March 2011), you will be refunded 100% of your tuition fees for the relevant semester. If you withdraw from a course after the census date, you will not be eligible for any refund.
For information on potential exemptions to the above rules contact the HECS and Fees Office of the Student Centre on 8627 8239.

Refunds for Withdrawals and Discontinuations (International Students)
International students should refer to the International Office website for further details regarding how to apply for a refund of fees. The refund policy can be located on-line at
Further information, please contact the International Office on 9351 8927 or email 8327 8348 or email refunds@io.usyd.edu.au.
Academic Honesty


Academic honesty is a core value of the University of Sydney. The University is committed to the basic academic right that students receive due credit for work submitted for Assessment. Integral to this is the notion that it is clearly unfair for students to submit work for Assessment that dishonestly represents the work of others as their own. Such activity represents a form of fraud and as such is taken very seriously by the University.

Forms of Academic Dishonesty

The most common form of academic dishonesty is plagiarism with intent to deceive the examiner. Plagiarism can be broadly defined as knowingly presenting another person’s ideas, findings, or work as one’s own by copying or reproducing the work without due acknowledgement of the source.

Plagiarism may take many forms. The most common form of plagiarism is where a student presents written work, including sentences, paragraphs or longer extracts from published work without attribution of its source. Work submitted for Assessment may also be regarded as plagiarised where significant portions of an assignment have been reproduced from the work of another student, since this exceeds the boundaries of legitimate co-operation.

Legitimate co-operation can be defined as any constructive educational and intellectual practice that aims to facilitate optimal learning outcomes through interaction between students. Within individual assignments (those not explicitly labelled group assignments), discussion with other students is legitimate but joint writing of solutions or viewing another student’s solution is not. Within group assignments, joint writing of solutions is legitimate and expected, but the work must bear all and only the names of the actual contributors. Parts of group assignments labelled as individual can be legitimately shown to and discussed in detail with other group members, but must be written by the individual alone.

Within the discipline of Information Technologies, the following activities are frequently associated with plagiarism and are therefore treated as evidence of academic dishonesty except when carried out legitimately within a declared group project: taking other students’ work from a printer; making files associated with assessed work available to others, by any means (making such files available is always beyond the boundaries of legitimate co-operation); attempting to view files owned by another student without permission, even when those files have been made accessible to others; encouraging other students to carry out operations which have the effect of making files accessible; using another student’s terminal while that student is temporarily absent (except that it is permitted during busy periods to log off a terminal that seems to have been abandoned), using any quantity of material from one or more web sites or other published sources without acknowledgement and attempting to pass it off as one’s own work, whether in written assignments or in presentations, is plagiarism with intent to deceive.

Other forms of academic dishonesty include recycling (the submission for Assessment of one’s own work, or of work which is substantially the same, which has previously been counted towards the satisfactory completion of another unit of study, and credited towards a university degree, and where the examiner has not been informed); fabrication of data; the engagement of another person to complete an Assessment or examination in place of the student, whether for payment or otherwise; communication, whether by speaking or some other means, to other candidates during an examination; bringing into an examination and concealing forbidden material such as text books, notes, calculators or computers; attempts to read other students’ work during an examination; and writing an examination or test paper, or consulting with another person about the examination or test, outside the confines of the examination room without permission.

Academic Dishonesty Procedure

The University of Sydney takes any form of academic dishonesty very seriously. There are formal procedures for dealing with academic dishonesty that are set out in the Academic Board resolution ‘Academic Honesty in Coursework’. In brief, when an examiner becomes aware of a case of academic dishonesty (including intent to deceive), he or she will refer the matter to the Head of School, who after giving the student a fair hearing may decide to dismiss the case, issue a written warning, require a resubmission, or apply a fail grade to the unit of study as a whole or to the affected part of it. The Head may also decide to refer the matter to the University Registrar where the student continues in a denial or the Head considers that failing the unit is insufficient. The Head must keep a record of the case, and communicate the decision in writing to the student in a timely manner. The university Calendar describes procedures for appeals against such decisions.

Students submitting work for Assessment in the School of Information Technologies will be required to sign a declaration stating that, except where specifically acknowledged, the work contained in the assignment/project is their own work, has not been copied from other sources and has not been previously submitted for award or Assessment.
Where there is a question about their contribution, then in order arrive at the final mark for the Assessment, students may be asked to identify those portions of the work contributed by them personally and required to demonstrate their knowledge of the relevant material by answering oral questions or by undertaking supplementary work, either written or in the laboratory.

**Attendance at Lectures, Tutorials and Laboratories**

Whilst students are generally expected to manage their own affairs in relation to study, regular attendance at lectures, tutorials and/or laboratory Classes is a requirement for all units, since it is here that students have the opportunity to put theory into practice. Also, students may receive additional explanations and supplementary material at lectures that would otherwise not be available from other sources. If the student misses out on this then they have missed an important part of the course.

A record may be kept of attendance at lectures, tutorials and laboratory Classes.

**Special Consideration due to Illness or Misadventure**

The Academic Board Resolutions on Assessment and Examination of Coursework (1 January 2002) state that the intention of special consideration regulations are that students should not be “disadvantaged by adverse personal circumstances beyond their control or by the activities of other students” (page 24). However, only well-attested serious illness or misadventure at the time of a specific Assessment task or examination will warrant special consideration.

An occasional brief absence is not a matter for special consideration, unless it prevents a student from meeting some specific Assessment commitment (assignment, test or examination). It does not need to be documented, nor can it be used to excuse poor performance. Recurrent or frequent short absences, on the other hand, should be documented.

Where deadlines for Assessment tasks during semester are made known at the beginning of the semester, students are expected to meet these deadlines even allowing for minor illness or difficult personal circumstances.

A clear distinction should be drawn between “a short-term illness or misadventure that may prevent a well-prepared student from sitting for an examination or completing a particular assignment” and “a longstanding illness or difficulties which prevent students from attending Classes or completing required work or which seriously interfere with their capacity to study for long periods”. The purpose of special consideration is to deal with the former of these situations.

In the case of a serious, long term or recurrent illness, or difficult personal circumstances, a point is reached at which the student can no longer be considered to have completed the course concerned. In such cases students should seek advice from the Postgraduate Director regarding the advisability of discontinuing their course until they are able to resume their studies effectively.

Process for Applying for Special Consideration

Student obtains and completes a ‘Special Consideration Application’ form, obtainable from either the Faculty office or from
http://sydney.edu.au/engineering/gse/documents/special_consideration_application_pack.pdf,
which includes a Professional Practitioners Certificate to be completed by the student’s registered medical practitioner or counsellor.

Student lodges forms at the Faculty office within one week of when the assessment was due. Student presents with the original documents, one copy for the Faculty’s records and one copy for each unit of study for which consideration is being sought. Copies are stamped ‘Received Faculty of Science dd/mm/yyyy’ and a receipt issued to the student.

Student lodges the stamped documentation at the School of Information Technologies’ office counter on the same day.

After academic judgment is complete, the student will be advised of the outcome by the School office via an email to their university email account, normally within ten working days of lodgement of their application.

Special Consideration relating to assessed work during semester
An application for Special Consideration must be received within one week from the date when the Assessment was due. It must specify exactly which unit(s) and which piece(s) of Assessment the application is intended to cover. Where the requirements for a piece of assessed work are known well in advance of the due date, students will not generally be granted Special Consideration for the submission of that work, except in cases of serious illness or misadventure covering a significant proportion of the relevant time period.

Where an application for Special Consideration is successful and it is possible for work to be accepted upon resumption of the student’s attendance, then marks may be awarded as if the work were on time. If it is considered that accepting work after the due date would compromise the validity of Assessment or give the student an unfair advantage over colleagues, for example where solutions have already been released, then some alternative mode of Assessment may be necessary. This may be a similar task or could take some other form, such as a viva voce, or practical test.

In the case of prolonged absence, it is the student’s responsibility to complete all on-going assessed work that is part of the course, or else to consider withdrawing from the course.

Special Consideration relating to examinations
Examination periods are publicised at the start of each year. Specific timetables are known some weeks before the end of each semester. Students are expected to attend these examinations even allowing for minor illness or difficult circumstances. The Special Consideration provisions described here are not to be used as a solution to bad planning or inadequate personal preparation. No allowance can be made for students whose personal arrangements make it impossible to attend examinations at the scheduled time.

If the absence is due to circumstances beyond his/her control, then the student may apply for Special Consideration. Subject to supplying the necessary documentation, he/she may be granted the opportunity to sit a further test (Note: ‘Further test’ is the official term. The term ‘supplementary examination’ is widely but not accurately used).

When considering their options students should bear in mind two important points:

- a further test will be granted only if the documentation provided is adequate,
- all further tests are scheduled over two days about one week after the normal examination period, and so the examination timetable for further test(s) is more compressed and possibly more stressful than the original time.

The case where the student sits the examination
Please note that it is not possible to use Special Consideration to compensate for poor performance in examinations. No change will be made to an examination mark as a result of an application for Special Consideration. This applies to cases of minor illness as well as to difficult or stressful circumstances. The only possible outcome is to sit a further test instead of the original exam.
The case where the student is absent from the examination
Subject to the receipt of an Application for Special Consideration in accordance with the requirements set out above, a student who is absent from an examination may be granted a further test. Further tests are scheduled over two days, usually one or two weeks after the end of the normal examination period.

Should a student miss a further test which has been offered, then only in very exceptional circumstances and subject to suitable additional documentation, will any further opportunity to complete the examination be granted.

Policy regarding longer periods of absence
In cases of serious, long term or recurrent illness, or difficult circumstances, a point is reached at which the student can no longer be considered to have completed the course concerned. In units offered by the School of Information Technologies with a duration of one semester this will be considered to be the case where a period of absence exceeds three weeks (i.e. 25% of the course). Students who are absent from class for periods exceeding three weeks should seek advice from the Sub-Dean or Deputy Director of Postgraduate Studies regarding the advisability of discontinuing their course until they are able to resume their studies effectively.

Assessment Criteria
It is School policy that students must attain a mark of at least 40% on each major component of the Assessment, as well as an overall mark of at least 50%, in order to obtain a clear pass (P or higher) in any unit of study. The precise definition of ‘major component’ is decided by the lecturer in charge, but will always include the final examination where there is one.

In general, late submissions will not be accepted unless either the lecturer has specifically advertised a late deadline and penalty, or else the Special Consideration procedure outlined previously in this handbook has been followed and the lecturer has agreed to accept the submission late on that basis.

The different units use a number of different ways to determine how well each student has mastered the material presented. Written exams (held during the usual examination period at the end of each semester), are common. Several subjects include a practical exam or quiz, in which students are required to solve a practical problem in a fixed time under supervised conditions. This enables the School to be sure that each student has mastered the required skills.

The way in which assessed work is returned varies from course to course. Usually, assignments done on paper are given back during tutorials, or are available from the Help Desk. When assignments are submitted electronically, the results of automatic grading are usually emailed or posted on the website or on the lecturer’s office door. Examinations are not returned; instead the result will be posted on a noticeboard at the Student Centre. However, all exams are kept for at least three months and during that period a student may examine the marked paper on Exam Review Day, or by arrangement with the lecturer involved.

Students in our programming units sometimes complain about the amount of work required. This is often because the students did not begin work on an assignment until close to the deadline, when the computer system is slow because of the large numbers of users. It is well-known that one always underestimates the effort involved in writing programs, so it is important to start work as soon as the question is given. Experience shows that writing code out by hand, and ‘tracing’ it carefully before entry into the computer, is much more productive than trying to compose the program at the keyboard. Another reason for excessive time spent on computing assignments is lack of thought in debugging; when a program does not work correctly, it is important to understand what caused the program to act as it did, and then correct the mistake, rather than blindly modifying the code and hoping that the new form will act better.

Students are reminded that the average time they are expected to spend on their course is 1.5 hours per credit point, per week. For example, for full-time students studying 4 units of study (24 Credit Points), the guideline is to spend a minimum of 36 hours per week on their course (this includes attending lectures and labs, preparation for meetings, and private study). These guidelines are given for students looking to achieve a pass in their units of study. Further time will need to be spent by the student on their course if a credit or distinction is sought after.

Students are reminded that the University requires attendance at lectures, tutorials, workshops and other scheduled Classes as a condition for being eligible to pass any unit.

Students are expected to work sufficiently in advance of assignment deadlines to allow for hardware faults and other problems that might make reliable access to School computers difficult. Special Consideration will not be given for such problems.
The School will offer a deferred examination in all units to students who miss the final examination owing to illness or misadventure and who document this by submitting a Special Consideration form to the School as soon as possible after the exam date, and within one week in any case. The School will reject requests which it judges to be trivial or insufficiently documented. It is University policy not to accept misreading the examination timetable as grounds for a deferred examination.

It is important to understand that if a student attends the main examination they will not be eligible for the deferred examination unless they suffer a medical emergency requiring medical treatment during the main examination. If not feeling well on the day of the examination, the student should decide whether it is best to obtain a medical certificate and stay away from the examination, rather than attend, perform poorly, and then find themselves ineligible for the deferred examination. Deferred examinations are written examinations similar to the corresponding main examinations: they have the same length and the same other properties (open/closed book, etc). The results of students who take the deferred examination will be calculated by substituting the deferred.

**EXAMINATIONS**

Students are expected to be on-shore and available until the conclusion of the exam period. Exams cannot be taken before their scheduled date. Should students encounter an exam clash (i.e. more than 1 exam is scheduled for the same time slot), they are required to sit for the clash exam in the following time slot, regardless of whether they already have a scheduled exam on the same day. Students may be required to sit up to two exams in one day.

**Perusal of Examination Scripts**

Notification of examination review days will be posted on the School of Information Technologies’ website – please check the site regularly.

Students need to obtain a copy of the ‘Request to Peruse Examination Script’ form from the School office. The completed form must be received by the School before the due date stipulated on it. Attend on the day and time specified. Reviews of examination scripts will normally be held in the week before the following semester commences. You will need to have your student id card with you for identification purposes. All materials must be left outside the room. Only the examination script will be provided for you to peruse.

Students should realise that this review is not a mechanism for acquiring additional marks, it is simply an opportunity to peruse their marked script. Except in cases where an error is revealed, no changes will be made to the original mark awarded as a result of the review process. Under no circumstances will marks ratified by the board of examiners be altered as a result of a review or requests from a student.

**Appealing Against Academic Decision**

There is a process for appealing against academic decisions which is set out in the University Calendar, which can be found in the Library and on the web. In brief, a student would first discuss their problem informally with the tutor or lecturer who made the decision and try to get it resolved that way. If it was a tutor who made the decision, the student can also take their appeal informally to the lecturer, and if it was the lecturer then the student can appeal informally to the Deputy Director of Postgraduate Coursework.

Some examples of appeals that would not succeed: mere disagreement with the academic judgment of a lecturer, or with an advertised marking scheme; requests for additional points to get to a pass because you need it in order to progress or graduate. Some examples of appeals that will succeed, if the facts bear out the appeal: lost marks, advertised marking schemes not followed, changes made to assignment specifications within a few days of the deadline.

Students have 3 months to appeal once the problem has arisen. Appeals should be made sooner rather than later to avoid difficulties, for example appeals after semester ends about problems during semester can be impossible to fix because tutors are not required to remain on site after semester ends.

If the problem is with an exam then the right approach is to attend the school's examination review day where you can view your exam and decide whether you want to appeal against the marking. The dates of exam review days are advertised on the School's Postgraduate website.

If these informal approaches do not resolve the problem, you may decide to take the more formal approach of putting your appeal in writing and sending it to the Head of School, who is then obliged to acknowledge receipt of it within three working days, try to resolve it within ten working days, and then reply to you in writing giving the decision and reasons.
Appeals against the Head of School’s decision to the Dean and ultimately to the University Senate are allowed for. See the University Calendar for details.

GRADUATION
Your eligibility to graduate will be assessed automatically when results for your final semester have been released. A Letter of Completion will be issued by the Graduate School of Engineering and IT (GSE&IT) and will be sent to your University email account. Refer to the Graduate School of Engineering and IT (GSE & IT) website for more information http://sydney.edu.au/engineering/gse/current/graduation_completion.shtml.

FACILITIES
The School provides an extensive computing environment, supporting over 400 users on a network of servers and workstations. More than 40 servers are used in the support of a diverse array of over 700 workstations running Unix, Linux and Microsoft operating environments. Additionally, the School’s research groups provide special purpose facilities, such as a multimedia studio and a pervasive computing laboratory.

Teaching is conducted in over 20 general computing laboratories. Evening and weekend lab access is available to students, with dial-up access available through the University’s modem pool. The School’s network provides 100Mbit switched Ethernet to the desktop and runs over the University’s gigabit Campus backbone, SydNet to five Camperdown and Darlington Campus locations. The University is a member of the NSW Regional Network Organisation, connecting SydNet to the Australian Academic and Research Network (AARNet) and the internet.

Students are provided with access to computing resources for the purpose of learning. These resources are expensive and shared by many people. Students are reminded that they are not allowed to misuse the resources. For example, it is not permitted for students to use other students’ accounts, or to keep copies of networking or game-playing software, or to print out handouts or work from other units. Attempts to undermine the security of the system, or to use resources for inappropriate goals, may lead to disciplinary action being taken.

Access to School of Information Technologies Building
The School of Information Technologies Building (J12) is located on the corner of Cleveland Street and City Road, next to the Seymour Centre. Open access to the building is between 8am and 9pm Monday to Friday during semester and between 8am and 5pm during vacations.

The Postgraduate Coursework Workroom
Very few universities in Australia provide dedicated space for postgraduate coursework students. The School of Information Technologies has made available to all postgraduate students a dedicated computer space. The Postgraduate Coursework Workroom is located on Level 1 West of the School of IT Building. 24-hour access to this lab will be available upon receipt of your security swipe card (see below) from Week 2 of the Semester. The Postgraduate Workroom has 50 machines with internet access, lounge space, toilet facilities and a kitchen. There is also a dedicated area for laptop use. We ask that you observe the rules while using the Workroom. Food and drink are not permitted in the vicinity of the machines, and you are not permitted to reserve workstations. Help desk personnel will be on duty from 5pm to 9pm (Mon-Thu) during the first four weeks of semester and are available for assistance should you need help with logging in, printing, etc.

Security Swipe Card
IT student may obtain a swipe card that allows 24-hour access to the postgraduate computer lab on Level 1 of the SIT building. The swipe cards can be collected from the Reception Desk on Level 2 of the SIT Building, and are free of charge. However, in the event that you lose your swipe card, you will be charged a $25.00 administration fee to have your card re-issued. Swipe cards are to be returned to reception at the end of semester.

Computer Access
An account on the School’s server is created for each enrolled student at the commencement of each semester. You must see the help desk personnel to obtain your account login and password. This service is available between 5pm and 9pm, Monday to Thursday, in the first two weeks of each semester. Please note that without a login and password, you will not have access to the School’s computing facilities.
The SciTech Library

The University of Sydney SciTech Library was opened by the Vice-Chancellor, Dr. Michael Spence on Friday 25 July 2008.

The Library is located on the 1st Floor of the Jane Foss Russell Building and was designed by John Wardle Architects, winners of the international design competition in consultation with staff of the Library and Faculties and students. In the last decade, the digital revolution has radically changed the information environment and the library design reflects the requirements of researchers, teachers and learners in this new era.

The SciTech Library is the amalgamation of the Architecture, Engineering, Madsen and Mathematics libraries, brought together as part of the Campus 2010 project.

Address
The SciTech Library
Level 1, Jane Foss Russell Building, G02
160 City Road
Darlington, NSW 2006

Phone: +61 2 8627 8711
Fax: + 61 2 8627 8730
Email: scitech@library.usyd.edu.au

LIBRARY RESOURCES FOR POSTGRADUATE STUDENTS

Using the Catalogue

Find library books by title, author or keyword. Request items held at other campuses. Reserve books borrowed by other users.
http://opac.library.usyd.edu.au/

Finding Journal Articles – catalogue, databases and Google Scholar

Locate journals using the OPAC. Conduct searches on databases. Using Google Scholar via the catalogue and adding Endnote via the references.
http://opac.library.usyd.edu.au/search/f

Accessing Material Not Held by the Library – Document Delivery

Obtain items not held by the library via interlibrary loan - http://www.library.usyd.edu.au/borrowing/docdel/

Obtaining EndNote - Download the EndNote bibliographical software

Where to Find Help

Know your Faculty Liaison Librarian - http://www.library.usyd.edu.au/contacts/staff/regan.html
Master of Information Technology
Graduate Diploma in Information Technology
Graduate Certificate in Information Technology

Course Overview
The University of Sydney offers planned, targeted postgraduate programs in IT to meet the demand of the IT industry. This articulated program includes the Graduate Certificate in Information Technology, the Graduate Diploma in Information Technology and the Master of Information Technology degree and is designed to provide a core of knowledge in information technology, supplemented by a broad range of options within areas of Computer Networks and the Internet, E-Business Technologies, Multimedia, Database Management, Software Engineering, Business Information Systems, etc. The combination of core units and electives provides an excellent retraining opportunity. Students will not only obtain breadth and depth in their knowledge of the IT industry but will also be able to choose from a selection of options which will allow them to focus on a specialisation in the broad span of the industry.

The Master of Information Technology requires 1 year (2 semesters) of full-time study. The degree is designed to teach you current developments in topics you have already studied as well as extend your knowledge in advanced computing subjects. The program consists of coursework and/or projects in your major area of interest.

During the first semester of attendance you have the opportunity to select from a number of Information Technology units of study. These cover topics in software engineering, database systems, multimedia, computer networks, business information systems, telecommunications engineering, and computer engineering.

Also available is a selection of specialist units of study covering advanced topics within various areas. In addition you have the option to choose information technology projects to replace some specialist units in the second semester if the average mark of your units of study is credit or above. The project involves a substantial piece of programming using the knowledge gained during the course and may be related to your employment.

Course Outcomes
Upon completion of the Graduate Certificate, graduates will possess a practical and theoretical background in some of the basic aspects of Information Technology. This can be supplemented and extended upon completion of the Graduate Diploma, and extended further to include research and practical skills by completion of the Masters program.

Upon completion of the Master of Information Technology graduates will have a sound knowledge base in several contemporary topics within information technology. They may also have the opportunity of applying this knowledge to the implementation of a useful system.

The Master of Information Technology is recognised as an industry relevant award, and it has been accredited by the Australian Computer Society (ACS) as a Professional Level course in information technology.

Admission Requirements
Applicants for the Graduate Certificate in Information Technology should hold a Bachelor's degree with substantial study of a relevant field of Information Technology; or a Bachelor of Engineering, Software Engineering or Telecommunications Engineering; or be able to offer evidence of recognised prior learning which is considered to demonstrate the knowledge and aptitude required to undertake this course.

Applicants for the Graduate Diploma in Information Technology should hold a Bachelor’s degree with substantial study of a relevant field of Information Technology; or a Bachelor of Engineering with a major sequence of study in Computer Engineering, Software Engineering or Telecommunications Engineering; or have completed the Graduate Certificate in Information Technology at the University of Sydney with credit average results or above.

Applicants for the Master of Information Technology should hold a Bachelor’s degree with credit average results in a major sequence in any aspect of Information Technology; or a Bachelor of Engineering with credit average results in a major sequence in Computer Engineering, Software Engineering or Telecommunications Engineering; or have completed the Graduate Diploma in Information Technology at the University of Sydney with credit average results or above; or have satisfactorily completed the Graduate Diploma in Computing at the University of Sydney. Satisfactory completion of the Graduate Diploma in Computing for purposes of entry into the Master of Information Technology requires that a candidate has not failed more than 12 Credit Points of units of study in the Graduate Diploma in Computing.

Course Requirements
Graduate Certificate in Information Technology:
- A total of 24 Credit Points must be completed;
- Credit Points can be selected from Foundational and Specialist units of study, excluding INFO5990 and IT project units of study.
- A maximum of 18 Credit Points may be selected with the approval of the Program Director, from units outside the School of IT, of which no more than 12 credits may be from outside the Faculty of Engineering and IT.

Graduate Diploma in Information Technology:
- A total of 36 Credit Points must be completed;
- A maximum of 24 Credit Points can be selected from Foundational units of study;
- At least 12 Credit Points should come from Specialist units of study, excluding INFO5990 and IT project units of study.
- A maximum of 18 Credit Points may be selected with the approval of the Program Director, from units outside the School of IT, of which no more than 12 credits may be from outside the Faculty of Engineering and IT.

Master of Information Technology:
- A total of 48 Credit Points must be completed;
- A maximum of 24 Credit Points can be selected from Foundational units of study;
- At least 24 Credit Points should come from Specialist units of study or IT project units of study;
- Every student must complete a defined major in the Master of Information Technology, which requires them to complete at least 18 Credit Points of Core units in the designated major and INFO5990;
- After completing 24 Credit Points of coursework, students who achieve Credit average results or above in their coursework may select 12 Credit Points of IT project units of study among their Specialist units;
- After completing 24 Credit Points of course work, students who have Distinction average results or above may be eligible for the Research path subject to the approval of the Head of the School of Information Technologies and the Dean;
- Students who pursue the Research path must study INFO5993 and select 18 Credit Points from IT research project units of study.
- A maximum of 18 Credit Points may be selected with the approval of the Program Director, from units outside the School of IT, of which no more than 12 credits may be from outside the Faculty of Engineering and IT.

Credit for previous study
In addition to the general credit transfer rules of the Coursework Rule, the following restrictions on credit transfer into these courses apply:
- where postgraduate study has been undertaken at the University of Sydney in one of the embedded courses of the
Master of Information Technology and no award has been conferred, credit may be transferred in full, provided the study has been undertaken within the previous three years and subject to approval of the Academic Director;

- where study has been undertaken at postgraduate level and no award has been conferred, credit to a maximum of 50% of the prescribed. Credit points may be transferred to the Graduate Diploma in Information Technology or the Master of Information Technology, provided: (i) the study has been undertaken at the University of Sydney, or at an external institution recognised by the University of Sydney, within the previous three years; and (ii) the units of study have been completed at credit level or above; and (iii) the units are equivalent to Core or Specialist units of study offered under the degree being taken, subject to approval of the Academic Director.

- where study has been undertaken at postgraduate level and an award has been conferred, credit to a maximum of 12 credit points may be transferred to the Master of Information Technology, provided: (i) the study has been undertaken at an external institution recognised by the University of Sydney within the previous three years; and (ii) the units of study have been completed at credit level or above; and (iii) the units are equivalent to Core or Specialist units of study offered under the degree being undertaken, subject to approval of the Academic Director.

Progression
In order to complete requirements for, or continue candidature in, the Master of Information Technology, the Graduate Diploma in Information Technology, and the Graduate Certificate in Information Technology, candidates shall be governed by the rules that are specified below.

1) The Dean may:
   a) advise a student when their performance has been such that a rule would normally be applied and call upon that student to show good cause why the rule should not be applied; and
   b) where the student does not show good cause, apply the rule.

2) A student who has failed a cumulative total of 12 Credit Points at any stage of enrolment in the Master of Information Technology will be required to show good cause why he or she should be allowed to re-enrol and, if good cause has not been established, the student's enrolment will be transferred to the Graduate Diploma in Information Technology;

3) A student who has failed a cumulative total of 18 Credit Points at any stage of enrolment in the Master of Information Technology and/or the Graduate Diploma in Information Technology will be required to show good cause why he or she should be allowed to re-enrol and, if good cause has not been established, the student's enrolment will be transferred to the Graduate Certificate in Information Technology;

4) A student who has failed a cumulative total of more than 18 Credit Points in the Master of Information Technology and/or the Graduate Diploma in Information Technology and/or the Graduate Certificate in Information Technology will be required to show good cause why he or she should be allowed to re-enrol and, if good cause has not been established, the student will not be permitted to re-enrol.

Units of study available in 2011
The units of study offered may change annually. Unless otherwise indicated, all units are worth 6 Credit Points

<table>
<thead>
<tr>
<th>Unit of study</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Foundational units</strong></td>
<td></td>
</tr>
<tr>
<td>COMP5028 Object-Oriented Design</td>
<td>1</td>
</tr>
<tr>
<td>COMP5114 Digital Media Fundamentals</td>
<td>2</td>
</tr>
<tr>
<td>COMP5116 Internet Protocols</td>
<td>2</td>
</tr>
<tr>
<td>COMP5138 Database Management Systems</td>
<td>2</td>
</tr>
<tr>
<td>COMP5206 Introduction to Information Systems</td>
<td>1</td>
</tr>
<tr>
<td>COMP5211 Algorithms</td>
<td>2</td>
</tr>
<tr>
<td>COMP5214 Software Development in Java</td>
<td>2</td>
</tr>
<tr>
<td>INFO5001 Systems Analysis and Modelling</td>
<td>2</td>
</tr>
<tr>
<td><strong>Specialist units</strong></td>
<td></td>
</tr>
<tr>
<td>COMP5045 Computational Geometry</td>
<td>1</td>
</tr>
<tr>
<td>COMP5046 Statistical Natural Language Processing</td>
<td>2</td>
</tr>
<tr>
<td>COMP5047 Pervasive Computing</td>
<td>2</td>
</tr>
<tr>
<td>COMP5048 Information Visualisation</td>
<td>2</td>
</tr>
<tr>
<td>COMP5318 Knowledge, Discovery and Data Mining</td>
<td>1</td>
</tr>
<tr>
<td>COMP5338 Advanced Data Models</td>
<td>2</td>
</tr>
<tr>
<td>COMP5347 e-Commerce Technology</td>
<td>1</td>
</tr>
<tr>
<td>COMP5348 Enterprise Scale Software Architecture</td>
<td>1</td>
</tr>
<tr>
<td>COMP5415 Multimedia Authoring and Production</td>
<td>2</td>
</tr>
<tr>
<td>COMP5426 Advanced Network Technologies</td>
<td>2</td>
</tr>
<tr>
<td>COMP5427 Information Technology in Biomedicine</td>
<td>1</td>
</tr>
<tr>
<td>COMP5428 Multimedia Storage, Retrieval &amp; Delivery</td>
<td>1</td>
</tr>
<tr>
<td>COMP5426 Parallel and Distributed Computing</td>
<td>1</td>
</tr>
<tr>
<td>COMP5456 Computational Methods for Life Sciences</td>
<td>1</td>
</tr>
<tr>
<td>INF0501 Information Security Management</td>
<td>1</td>
</tr>
<tr>
<td>INF05990 Professional Practice in IT</td>
<td>1</td>
</tr>
<tr>
<td>INF0991 Services Science Management and Eng</td>
<td>1</td>
</tr>
<tr>
<td>INF0993 IT Research Methods</td>
<td>1</td>
</tr>
<tr>
<td>INF0607 Project Management in IT</td>
<td>1</td>
</tr>
<tr>
<td>ELEC5303 Computer Control System Design</td>
<td>2</td>
</tr>
<tr>
<td>ELEC5402 Digital Integrated Circuit Design</td>
<td>1</td>
</tr>
<tr>
<td>ELEC5507 Error Control Coding</td>
<td>1</td>
</tr>
<tr>
<td>ELEC5508 Wireless Engineering</td>
<td>2</td>
</tr>
<tr>
<td>ELEC5509 Mobile Networks</td>
<td>1</td>
</tr>
<tr>
<td>ELEC5510 Satellite Communications</td>
<td>1</td>
</tr>
<tr>
<td>ELEC5511 Optical Communication Systems</td>
<td>1</td>
</tr>
<tr>
<td>ELEC5512 Optical Networks</td>
<td>2</td>
</tr>
<tr>
<td>ELEC5613 Image Processing and Computer Vision</td>
<td>n/a</td>
</tr>
<tr>
<td>ELEC5614 Real Time Computing</td>
<td>2</td>
</tr>
<tr>
<td>ELEC5615 Advanced Computer Architecture</td>
<td>n/a</td>
</tr>
<tr>
<td>ELEC5616 Computer and Network Security</td>
<td>1</td>
</tr>
<tr>
<td>ELEC5619 Object oriented Application Frameworks</td>
<td>2</td>
</tr>
<tr>
<td>HMT5058 Health Informatics Applications</td>
<td>1</td>
</tr>
<tr>
<td>HMT5069 Health Care Systems</td>
<td>2</td>
</tr>
<tr>
<td>INF5612 Business Process Integration</td>
<td>1</td>
</tr>
<tr>
<td>INF5617 Strategic Information &amp; Knowledge Mgmt</td>
<td>2</td>
</tr>
<tr>
<td>PMGT6867 Quantitative Methods: Project Management</td>
<td>1</td>
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</tbody>
</table>

**IT project units**

<table>
<thead>
<tr>
<th>Unit</th>
<th>Semester</th>
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</thead>
<tbody>
<tr>
<td>COMP5703 Information Technology Project (12cp)</td>
<td>2</td>
</tr>
<tr>
<td>COMP5705 Information Technology Short Project (6cp)</td>
<td>2</td>
</tr>
<tr>
<td>COMP5706 IT Industry Placement Project (6cp)</td>
<td>2</td>
</tr>
</tbody>
</table>

**IT project units - Research Path Only**

<table>
<thead>
<tr>
<th>Unit</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP5702 IT Research Project A (12cp)</td>
<td>2</td>
</tr>
<tr>
<td>COMP5704 IT Research Project B</td>
<td>2</td>
</tr>
<tr>
<td>INF5993 IT Research Methods</td>
<td>2</td>
</tr>
</tbody>
</table>

**Majors – rules and core units for 2011**
Majors are not defined for the Graduate Certificate or for the Graduate Diploma in Information Technology.

**Core Units for Computer Networks major**

- COMP5047 Pervasive Computing
- COMP5116 Internet Protocols
- COMP5416 Advanced Network Technologies
- COMP5426 Parallel and Distributed Computing
- COMP5703 Information Technology Project (12 cp)
- ELEC5509 Mobile Networks

**Research path:**
- COMP 5702/5704 IT Research Project A+B (18 cp)

**Core Units for Multimedia Technology major**

- COMP5047 Pervasive Computing
- COMP5116 Internet Protocols
- COMP5416 Advanced Network Technologies
- COMP5426 Parallel and Distributed Computing
- COMP5703 Information Technology Project (12 cp)
- ELEC5509 Mobile Networks

**Research path:**
- COMP 5702/5704 IT Research Project A+B (18 cp)
COMP5425 Multimedia Storage, Retrieval and Delivery
COMP5703 Information Technology Project (12 cp)
ELEC5613 Image Processing and Computer Vision

One of the Core Unit selected from the Computer Science major
to a maximum of 6 cp

Research path:
COMP 5702/5704 IT Research Project A+B (18 cp)

Core Units for Database Management Systems major

Units required for this major: INFO5990 and 18 Credit Points of study units from this list. Students in the Research Path must complete INFO5993 instead of INFO5990.

COMP5046 Statistical Natural Language Processing
COMP5138 Database Management Systems
COMP5318 Knowledge Discovery and Data Mining
COMP5338 Advanced Data Models
COMP5425 Multimedia Storage, Retrieval & Delivery
COMP5703 Information Technology Project (12 cp)

Research path:
COMP 5702/5704 IT Research Project A+B (18 cp)

Core Units for Software Engineering major

Units required for this major: INFO5990 and 18 Credit Points of study units from this list. Students may count either COMP5028 or COMP5214 or INFO5991 towards this major, but not more than one of these Foundation Units. Students in the Research Path must complete INFO5993 instead of INFO5990.

COMP5028 Object-Oriented Design
COMP5214 Software Development in Java
COMP5347 E-Commerce Technology
COMP5348 Enterprise Scale Software Architecture
ELEC5616 Computer and Security Network
ELEC 5619 Object Oriented Application Frameworks
INFO5001 Systems Analysis and Modelling
COMP5703 Information Technology Project (12 cp)

One of the Core Units selected from the Computer Science major
to a maximum of 6 cp.

Research path:
COMP 5702/5704 IT Research Project A+B (18 cp)

Core Units for Computer Science major

Units required for this major: INFO5990 and 18 Credit Points of study units from this list. Students in the Research Path must complete INFO5993 instead of INFO5990.

COMP5045 Computational Geometry
COMP5046 Statistical Natural Language Processing
COMP5047 Pervasive Computing
COMP5048 Information Visualisation
COMP5211 Algorithms
COMP5456 Computational Methods for Life Sciences
COMP5703 Information Technology Project (12 cp)

Research path:
COMP 5702/5704 IT Research Project A+B (18 cp)

Core Units for Telecommunications Engineering major

Units required for this major: INFO5990 and 18 Credit Points of study units from this list. Students in the Research Path must complete INFO5993 instead of INFO5990.

A maximum of 18 Credit Points of ELEC-coded units of study can be completed.

COMP5116 Internet Protocols
COMP5416 Advanced Network Technologies
COMP5703 Information Technology Project (12 cp)
ELEC5507 Error Control Coding
ELEC5508 Wireless Engineering
ELEC5509 Mobile Networks
ELEC5510 Satellite Communication Systems
ELEC5511 Optical Communication Systems
ELEC5512 Optical Networks

Research path:
COMP 5702/5704 IT Research Project A+B (18 cp)

Core Units for Computer Engineering major

Units required for this major: INFO5990 and 18 Credit Points of study units from this list. Students in the Research Path must complete INFO5993 instead of INFO5990.

A maximum of 18 Credit Points of ELEC-coded units of study can be completed.

COMP5116 Internet Protocols
COMP5703 Information Technology Project (12 cp)
ELEC5303 Computer Control System Design
ELEC5402 Digital Integrated Circuit Design
ELEC5614 Real Time Computing
ELEC5615 Advanced Computer Engineering
ELEC5616 Computer and Network Security

Research path:
COMP 5702/5704 IT Research Project A+B (18 cp)

Core Units for Business Information Systems major

Units required for this major: INFO5990 and 18 Credit Points of study units from this list, including COMP5026. Students in the Research Path must complete INFO5993 instead of INFO5990.

COMP5206 Introduction to Information Systems
COMP5703 Information Technology Project (12 cp)
INFO5301 Information Security Management
INFO5991 Services Science Management and Eng
INF56012 Business Process Integration
INF56017 Strategic Information & Knowledge Management

Research path:
COMP 5702/5704 IT Research Project A+B (18 cp)

Core Units for Project Management major

Units required for this major: INFO5990 and 18 Credit Points of study units from this list, including INFO6007. Students in the Research Path must complete INFO5993 instead of INFO5990.

COMP5348 Enterprise Scale Software Architecture
COMP5703 Information Technology Project (12 cp)
INFO5001 Systems Analysis and Modelling
INFO5991 Services Science Management and Eng’s
INFO6007 Project Management in IT
PMGT6867 Quantitative Methods: Project Management

Research path:
COMP 5702/5704 IT Research Project A+B (18 cp)

Core Units for Health Informatics major

Units required for this major: INFO5990 and 18 Credit Points of study units from this list, including HIMT5057 or COMP5424. Students in the Research Path must complete INFO5993 instead of INFO5990.

A maximum of 12 Credit Points of HIMT-coded units of study can be completed.

COMP5046 Statistical Natural Language Processing
COMP5206 Introduction to Information Systems
COMP5424 Information Technology in Biomedicine
This unit of study provides a conceptual and practical introduction to the use of common platforms that manage large relational databases. Students will understand the foundations of database management and enhance their theoretical and practical knowledge of the widespread relational database systems, as these are used for both operational (OLTP) and decision-support (OLAP) purposes. The unit covers the main aspects of SQL, the industry-standard database query language. Students will further develop the ability to create robust relational database designs by studying conceptual modelling, relational design and normalization theory. This unit also covers aspects of relational database management systems which are important for database administration. Topics covered include storage structures, indexing and its impact on query plans, transaction management and data warehousing.

Objectives: In this unit students will develop the ability to:
- Understand the foundations of database management;
- Strengthen their theoretical knowledge of database systems in general and relational data model and systems in particular;
- Create robust relational database designs;
- Understand the theory and applications of relational query processing and optimization;
- Study the critical issues in data and database administration;
- Explore the key emerging topics in database management.

**COMP5206 Introduction to Information Systems**

**Credit points:** 6 Session: Semester 1, Semester 2 Classes: One 2 hour lecture and one 1 hour tutorial per week. Prohibitions: INF5210

**Campus:** Camperdown/Darlington Mode of delivery: Normal (lecture/lab/tutorial) Day

This unit provides a comprehensive introduction to information systems in organisations and the enabling role of information technology. The critical role of data and knowledge management will be covered from both conceptual and practical standpoints. Methods and techniques for analysing systems and eliciting user requirements will be emphasised. Key topics covered include: basic information systems concepts; systems approach and systems thinking; E-Business and E-Commerce; data and knowledge management; systems analysis and development methodologies; ethical, legal and social aspects of information technologies; and Web 2.0 and social computing. On completion of this unit students will have a good understanding of important information concepts; a deep understanding of the systems approach and its applicability; be able to develop skills to perform systems analysis in contemporary systems environments; have an understanding of major conceptual and technological developments in Information Systems.

**COMP5211 Algorithms**

**Credit points:** 6 Session: Semester 1, Semester 2 Classes: One 2 hour lecture and one 1 hour tutorial per week. Campus: Camperdown/Darlington Mode of delivery: Normal (lecture/lab/tutorial) Day

The study of algorithms is a fundamental aspect of computing. This unit of study covers data structures, algorithms, and gives an overview of the main ways of thinking used in IT from simple list manipulation and data format conversion, up to shortest paths and cycle detection in graphs. The objective of the unit are to teach basic concepts in data structure, algorithm, dynamic programming and program analysis. Students will gain essential knowledge in computer science.

**COMP5214 Software Development in Java**

**Credit points:** 6 Session: Semester 1, Semester 2 Classes: One 2 hour lecture and one 1 hour tutorial per week. Campus: Camperdown/Darlington Mode of delivery: Normal (lecture/lab/tutorial) Day

Note: Department permission required for enrolment in the following sessions: Semester 1

This unit of study introduces software development methods, where the main emphasis is on careful adherence to a process. It includes design methodology, quality assurance, group work, version control, and documentation. It will suit students who do not come from a programming background, but who want to learn the basics of computer software.

Objectives: This unit of study covers systems analysis, a design methodology, quality assurance, group collaboration, version control, software delivery and system documentation.
Specialist units of study

COMP5045 Computational Geometry
Credit points: 6 Session: Semester 1 Classes: One 2 hour scheduled small group class per week, plus 10 hours per week private work. Prohibitions: COMP5045 Assumed knowledge: Data structures, analysis of algorithms Campus: Camperdown/Darlington Mode of delivery: Normal (lecture/lab/tutorial) Day

In many areas of computer science - robotics, computer graphics, virtual reality, and geographic information systems are some examples - it is necessary to store, analyse, and create or manipulate spatial data. This course deals with the algorithmic aspects of these tasks: we study techniques and concepts needed for the design and analysis of geometric algorithms and data structures. Each technique and concept will be illustrated on the basis of a problem arising in one of the application areas mentioned above.

Textbooks

COMP5045 Statistical Natural Languages Processing

This unit deals with techniques for the automatic processing of natural languages (such as English, French, etc) and the engineering of such software systems. Engineering processes will be described in the context of methods for creating effective tools for information retrieval and extraction, question answering, classifying and clustering of the documents in a large corpora.

Besides in lectures, the advanced topics will be also studied with current developments of advanced data management techniques.

COMP5047 Pervasive Computing
Credit points: 6 Session: Semester 2 Classes: One 2 hour scheduled small-group class per week, plus 10 hours per week private work. Prohibitions: NETS4047 Assumed knowledge: Networking concepts, operating system concepts, programming expertise. Campus: Camperdown/Darlington Mode of delivery: Normal (lecture/lab/tutorial) Day

This is an advanced course in HCI, Human Computer Interaction, with a focus on Pervasive Computing. It introduces the key aspects of HCI and explores these in terms of the new research towards creating user interfaces that disappear into the environment and are available pervasively, for example in homes, workplaces, cars and carried or worn.

COMP5048 Information Visualisation

Information Visualisation and Graph Drawing aim to make good pictures of abstract information, such as stock prices, family trees, and software design diagrams. Well designed pictures can convey this information rapidly and effectively. The research challenge for Information Visualisation and Graph Drawing is to design and implement new algorithms that produce such pictures. Applications include visualisation of bioinformatics, social network, software visualisation and network visualisation. This unit will provide basic concepts, techniques and fundamental algorithms to achieve good visualisation of abstract information. Further, it will also provide opportunities for academic research and developing new methods for information visualisation.

COMP5318 Knowledge Discovery and Data Mining
Credit points: 6 Session: Semester 1, Semester 2 Classes: (Lec 2hrs & Prac 1hr) per week Assumed knowledge: COMP5138 and familiarity with basic statistics Campus: Camperdown/Darlington Mode of delivery: Normal (lecture/lab/tutorial) Day

Note: Department permission required for enrolment in the following sessions: Semester 2

Knowledge discovery is the process of extracting useful knowledge from data. Data mining is a discipline within knowledge discovery that seeks to facilitate the exploration and analysis of large quantities of data, by automatic or semiautomatic means. This subject provides a practical and technical introduction to knowledge discovery and data mining.

Objectives: Topics to be covered include problems of data analysis in databases, discovering patterns in the data, and knowledge interpretation, extraction and visualisation. Also covered are analysis, comparison and usage of various types of machine learning techniques and statistical techniques: clustering, classification, prediction, estimation, affinity grouping, description and scientific visualisation.

COMP5338 Advanced Data Models
Credit points: 6 Session: Semester 2 Classes: One 2 hour lecture and one 1 hour tutorial per week. Assumed knowledge: COMP5028 Object Oriented Analysis and Design Campus: Camperdown/Darlington Mode of delivery: Normal (lecture/lab/tutorial) Day

This unit of study gives a comprehensive overview of post-relational data models and of latest developments in database technology. Particular emphasis is put on spatial, temporal, and semi-structured data. The unit extensively covers the advanced features of SQL:2008, as well as XML and related standards such as XMLSchemata, xPath, and xQuery. The last part is dedicated to current developments of advanced data management techniques. Besides in lectures, the advanced topics will be also studied with prescribed readings of database research publications.

COMP5347 e-Commerce Technology
Credit points: 6 Session: Semester 1 Classes: One 2 hour lecture and one 1 hour tutorial per week. Assumed knowledge: COMP5028 Object Oriented Analysis and Design Campus: Camperdown/Darlington Mode of delivery: Normal (lecture/lab/tutorial) Day

This unit will focus on technological advances supporting the development of e-commerce applications and systems. This includes client and server side development of e-commerce applications. AJAX is the core client side technology covered in this course. Both server scripting and server page technology are covered as key server side technology. It will also examine the emerging trend of web services and its role in E-commerce systems. This unit aims at providing both conceptual understanding and hand-on experiences for the technologies covered.

COMP5348 Enterprise Scale Software Architecture
Credit points: 6 Session: Semester 1 Classes: (Lec 2hrs & Prac 1hr) per week Assumed knowledge: INFO3220 or COMP5028 equivalent. Campus: Camperdown/Darlington Mode of delivery: Normal (lecture/lab/tutorial) Day

This unit covers topics on software architecture for large-scale enterprises. Computer systems for large-scale enterprises handle critical business processes, interact with computer systems of other organisations, and have to be highly reliable, available and
This unit provides principles and practicalities of creating interactive and effective multimedia products. It gives an overview of the complete spectrum of different media platforms and current authoring techniques used in multimedia production. Coverage includes the following key topics: enabling multimedia technologies; multimedia design issues; interactive 2D & 3D computer animation; multimedia object modelling and rendering; multimedia scripting programming; post-production and delivery of multimedia applications.

COMP5417 Advanced Network Technologies
Credit points: 6 Session: Semester 2 Classes: One 2 hour lecture and one 1 hour tutorial per week. Assumed knowledge: ELEC3506 or equivalent. Campus: Camperdown/Darlington Mode of delivery: Normal (lecture/lab/tutorial) Day

The unit introduces networking concepts beyond the best effort service of the core TCP/IP protocol suite. Understanding of the fundamental issues in building an integrated multi-service network for global Internet services, taking into account service objectives, application characteristics and needs and network mechanisms for global Internet services, taking into account service objectives, application characteristics and needs will be discussed. Enables students to understand the core issues and be aware of proposed solutions so they can actively follow and participate in the development of the Internet beyond the basic best transport service.

COMP5424 Information Technology in Biomedicine
Credit points: 6 Session: Semester 1 Classes: One 2 hour lecture and 1 hour tutorial per week. Assumed knowledge: Basic programming skills. Campus: Camperdown/Darlington Mode of delivery: Normal (lecture/lab/tutorial) Day

Information technology (IT) has significantly contributed to the research and practice of medicine, biology and health care. The IT field is primarily in scope with biology taking a lead role in utilizing the evolving applications to its best advantage. The goal of this unit is to provide students with the necessary knowledge to understand the information technology in biomedicine. The major emphasis will be on the principles associated with biomedical digital imaging systems and related biomedical data processing, analysis, visualization, registration, modelling, compression, management and communication. Specialist areas such as Picture Archiving and Communication Systems (PACS), computer-aided diagnosis (CAD), image-guided surgery (IGS), content-based medical image retrieval (CBMIR), and ubiquitous m-Health, etc. will be addressed. A broad range of practical integrated clinical applications will be also elaborated.

COMP5425 Multimedia Storage, Retrieval & Delivery
Credit points: 6 Session: Semester 1 Classes: One 2-hour lecture and 1 hour prac per week. Assumed knowledge: Algorithms (equivalent to COMP5211). Campus: Camperdown/Darlington Mode of delivery: Normal (lecture/lab/tutorial) Day

The explosive growth of multimedia data, including text, audio, images and video, has generated an extremely challenging job in effective and efficient storing, managing, retrieving and delivering this data across IT infrastructure. This unit provides students with the most updated knowledge in order to address these issues from multimedia database to multimedia content delivery. The unit content principally covers multimedia data compression; low-level feature extraction; high-level semantic description; storage structures and management; similarity measurement, indexing, and retrieval; security for content distribution. Various applications will be discussed, including multimedia Internet search and video streaming.

COMP5426 Parallel and Distributed Computing
Credit points: 6 Session: Semester 1 Classes: (Lec 2hrs & Prac 1hr) per week. Assumed knowledge: Equivalent of COMP5116. Campus: Camperdown/Darlington Mode of delivery: Normal (lecture/lab/tutorial) Day

This unit is intended to introduce and motivate the study of high performance computer systems. The student will be presented with the foundational concepts of parallel and distributed computing that are pertaining to the different types and classes of high performance computers. The student will be exposed to the description of the computer systems and will also get an introduction to the principles of cloud computing. Students will gain skills in evaluating, experimenting with, and optimizing the performance of high performance computers. The unit also provides students with the ability to undertake more advanced topics and courses on high performance computing.

COMP5456 Computational Methods for Life Sciences
Credit points: 6 Session: Semester 2 Classes: One 2 hour lecture, one 1 hour tutorial and one 2 hour lab per week. Prohibitions: COMP3456. Campus: Camperdown/Darlington Mode of delivery: Normal (lecture/lab/tutorial) Day

This unit brings together a wide range of skills that are routinely practised in bioinformatics, from the "hard" subjects of mathematics, statistics and computer science, to the "soft" subjects in the biological/health sciences and pharmacology. It covers the essentials of bioinformatics data gathering, manipulation, mining and storage that underpin bioinformatics research, and provides additional practice in the graduate attributes of Research and Inquiry, Information Literacy and Communication through analysis of scientific research, use of large bioinformatics data sets, and writing of reports.

COMP5705 Information Technology Short Project
Credit points: 6 Session: Semester 1, Semester 2. Campus: Camperdown/Darlington Mode of delivery: Normal (lecture/lab/tutorial) Day

Note: Department permission required for enrolment

This is a short 6cp IT project unit of study that can be taken either stand-alone as a short IT project during winter or summer schools, or as an internship-project as part of an industry-based scholarship such as the Faculty Postgraduate Industry Project Placement Scheme (RPPS). The focus is on the development of a client-focused solution with proper project management and documentation. For such students who follow the internship model of one day a week over both semester 1 and semester 2, COMP5705 can be combined with COMP5706 IT Industry Placement Project.

COMP5706 IT Industry Placement Project
Credit points: 6 Session: Semester 1, Semester 2. Campus: Camperdown/Darlington Mode of delivery: Normal (lecture/lab/tutorial) Day

Note: Department permission required for enrolment

This is a short 6cp IT project unit of study that can be taken in combination with COMP5705 Information Technology Short Project by students taking an Industry-based scholarship such as the Faculty’s Research Industry Placement Project Scholarship (RIPPS), which they split over one day a week over both semester 1 and semester 2.

ELEC3303 Computer Control System Design
Credit points: 6 Session: Semester 1 Classes: 2 hours of lectures and 2 hours lab/tutorial per week. Prohibitions: ELEC4301 Assumed knowledge: This unit assumes a basic knowledge of calculus, functions of
This unit aims to teach the basic issues involved in the analysis and design of computer-controlled systems. The emphasis is on theory rather than technological application or industrial practice. However, students are expected to test some of these ideas on a few benchmark control problems in the laboratory. Completion of the unit will facilitate progression to advanced study in the area and to work in industrial control. This unit assesses a basic knowledge of calculus, functions of real variables, Laplace transform, matrix theory and control theory. The following topics are covered. Sampled data systems: aliasing. Zero order hold equivalent; inverse of sampling, sampling system with time delay. Properties of difference equations: solution, stability, change of co-ordinates, Z transform. Input output models: pulse response, pulse transfer operator, pulse transfer function, interpretation of poles and zeros. Analysis of discrete time system: stability (Jury’s test, Nyquist criterion, Lyapunov method), sensitivity and robustness, observability (observers, reduced order observers), reachability and controllers, loss of reachability/observability through sampling, output feedback, the Separation theorem. Optimal control: Kalman filter, linear quadratic regulator, output feedback, the Separation theorem. Approximating continuous time controllers. Finite word length implementations.

ELEC5402 Digital Integrated Circuit Design
Credit points: 6 Session: Semester 1 Class: 2 hours of lectures and a 2 hours project work in class per week. Prohibitions: ELEC4402

This unit of study explores CMOS technology and integrated circuit design and fabrication. The fundamental theory and techniques behind digital integrated circuit design are introduced. A primary focus of this unit is providing the student with practical laboratory design experience using a professional VLSI CAD tool to design digital integrated circuits. This unit provides a foundation for more advanced digital integrated circuit design techniques and also analogue integrated circuit design. Topics covered in this unit are: IC manufacturing process and CMOS technology, CMOS static logic design, CMOS dynamic logic design, arithmetic building block design, sequential logic design, VLSI interconnection and wiring issues, timing issues, digital memory design, digital system design methodologies.

ELEC5507 Error Control Coding
Credit points: 6 Session: Semester 1 Class: 2 hours of lectures and a 1 hour tutorial per week. Prohibitions: ELEC4503

This unit deals with the principles of error control coding techniques and their applications in various communication and data storage systems. Its aim is to present the fundamentals of error control coding techniques and develop theoretical and practical skills in the design of error control encoders/decoders. Successful completion of this unit will facilitate progression to advanced study or to work in the fields of telecommunications and computer engineering. It is assumed that the students have some background in communications principles and probability theory. The following topics are covered. Introduction to error control coding, linear algebra. Linear block codes, cyclic codes. BCH codes. Reed-Solomon codes. Burst-virtual correcting codes, design of codes for block codes, applications of block codes in communications and digital recording. Convolutional codes, Viterbi algorithm, design of codes for convolutional codes, applications of convolutional codes in communications, soft decision decoding of block and convolutional codes, trellis coded modulation, block coded modulation, design of codes for trellis codes, applications of trellis codes in data transmission. Turbo codes and applications to space and mobile communications.

ELEC5508 Wireless Engineering
Credit points: 6 Session: Semester 2 Class: 2 hours of lectures and a 1 hour tutorial per week. Prohibitions: ELEC5504, ELEC4504
Assumed knowledge: Basic knowledge in probability and statistics, analog and digital communications, error probability calculation in communications channels, and telecommunications network. Campus: Camperdown/Darlington Mode of delivery: Normal (lecture/lab/tutorial) Day

This unit will introduce the key ideas in modern wireless telecommunications networks. It will address both physical layer issues such as propagation and modulation, plus network layer issues such as capacity, radio resource management and mobility management issues. The following topics are covered. Mobile radio channel: Multipath fading, diversity, log-normal fading, mean propagation loss, propagation models. Cellular technologies: Cell types, coverage, frequency reuse, spectral efficiency, link budget, power budget, traffic capacity. Omnidirectional and sectorised antennas. Handover, interaction with the fixed network. Microcells and macrocells, Medium access control: Near-far effect and the hidden terminal problem. Multiple access schemes: FDMA, TDMA, CDMA. Aloha and slotted-Aloha, carrier sense multiple access, reservation-based MAC schemes, polling, spread-alooha multiple access. GSM: System architecture, radio resource management, mobility management, connection management. Third generation systems: WCDMA and cdma2000. Wireless LANs: IEEE802.11, Hiperlan, Bluetooth. Convergence: GSM evolution to data services via GPRS and EDGE, Issues with TCP over wireless. Mobility management in MobileIP.

ELEC5509 Mobile Networks
Credit points: 6 Session: Semester 1 Class: 2 hours of lecture and a 2 hours tutorial/project meeting per week. Prohibitions: ELEC5501
Assumed knowledge: Basically, students need to know the concepts of data communications and mobile communications, which could be gained in one the following units of study: ELEC3505 Communications, ELEC3506 Data Communications and the Internet, or similar units. If you are not sure, please contact the instructor. Campus: Camperdown/Darlington Mode of delivery: Normal (lecture/lab/tutorial) Day

This unit of study serves as an introduction to communications network research. The unit relies on a solid understanding of data communications and mobile networks. It introduces some of the currently most debated research topics in mobile networking and presents an overview of different technical solutions. Students are expected to critically evaluate these solutions in their context and produce an objective analysis of the advantages/disadvantages of the different research proposals. The general areas covered are wireless Internet, mobility management, quality of service in mobile and IP networks, ad hoc networks, and cellular network architectures. The following topics are covered. Introduction to wireless and mobile Internet. Wireless cellular data networks. Cellular mobile networks. Mobile networks of the future. Quality of service in a mobile environment. Traffic modelling for wireless Internet. Traffic management for wireless Internet. Mobility management in mobile networks. Transport protocols for mobile networks. Internet protocols for mobile networks.

ELEC5510 Satellite Communication Systems
Credit points: 6 Session: Semester 2 Class: 2 hours of lectures, 1 hour tutorial per week, 3 hour site visit during semester. Prohibitions: ELEC5502
Assumed knowledge: Knowledge of error probabilities, analog and digital modulation techniques and error performance evaluation studied in ELEC3505 Communications and ELEC4505 Digital Communication Systems, is assumed. Campus: Camperdown/Darlington Mode of delivery: Normal (lecture/lab/tutorial) Day

Satellite communication systems provide fixed and mobile communication services over very large areas of land, sea and air. This unit presents the fundamental knowledge and skills in the analysis and design of such systems. It introduces students to the broad spectrum of satellite communications and its position in the entire telecommunications network; helps students to develop awareness of the key factors affecting a good satellite communications system and theoretical and practical skills in the design of a satellite communications link. Topic areas include: satellite communication link design; propagation effects and their impact on satellite performance; satellite antennas; digital modem design, speech codec design; error control for digital satellite links.
ELEC5511 Optical Communication Systems
Credit points: 6 Session: Semester 1 Classes: 2 hours of lectures and 2 hours laboratory/tutorial per week. Assumed knowledge: (ELEC3503 Introduction to Digital Communications or ELEC3505 Communications) and ELEC3402 Communications Electronics or ELEC3405 Communications Electronics and Photonics) or equivalent. Campus: Camperdown/Darlington Mode of delivery: Normal (lecture/lab/tutorial) Day

This course will provide an understanding of the fundamental principles of optical fibre communication systems. It commences with a description of optical fibre propagation characteristics and transmission properties. We will then consider light sources and the fundamental principles of laser action in semiconductor and other lasers, and also the characteristics of optical transmitters based on semiconductor and electro-optic modulation techniques. The characteristics of optical amplifiers will also be discussed. On the receiver side, the principles of photodetection and optical receiver sensitivity will be discussed. Other aspects such as fibre devices and multiple wavelength division multiplexing techniques will also be discussed. Finally, the complete optical fibre communication system will be studied to enable the design of data transmission optical systems, local area networks and multi-channel optical systems.

ELEC5512 Optical Networks

This Unit builds upon the fundamentals of optical communication introduced in ELEC3405 (Communications Electronics and Photonics) and ELEC5511 (Fibre Optic Communication Systems). It focuses on photonic network architectures and protocols, network design, enabling technologies and the drivers for intelligent optical network. Students will learn how to analyze and design optical networks and optical components.

ELEC5614 Real Time Computing
Credit points: 6 Session: Semester 1 Classes: 2 hours of lectures, 1 hour tutorial per week, 2 hours labs per week. Prohibitions: ELEC4602 Assumed knowledge: SOFT2130 Software Construction (or SOFT2004 Software Development Methods 1) and ELEC3607 Embedded Computing (or ELEC2601 Microprocessor Systems). Ability to program in a high level language. Campus: Camperdown/Darlington Mode of delivery: Normal (lecture/lab/tutorial) Day

This unit is concerned with the theory and practice of real time computer systems as applied to the design of embedded systems and computer control systems in engineering, manufacturing and automation. Some background in programming, object oriented design and system architecture is assumed. A prime aim of this unit of study is to develop a capacity for research and inquiry in the field of real-time and embedded systems. Completion of this unit will facilitate progression to advanced study or to work in embedded systems and industrial real-time computer systems.

ELEC5616 Computer and Network Security
Credit points: 6 Session: Semester 1 Classes: 2 hours of lectures, 1 hour of tutorial and 2 hours labs per week. Prohibitions: ELEC5611, NETS3506, NETS3516. Assumed knowledge: A programming language, basic maths. Campus: Camperdown/Darlington Mode of delivery: Normal (lecture/lab/tutorial) Day

This unit examines the basic cryptographic building blocks of security, working through to their applications in authentication, key exchange, secret and public key encryption, digital signatures, protocols and systems. It then considers these applications in the real world, including models for integrity, authentication, electronic cash, viruses, firewalls, electronic voting, risk assessment, secure web browsers and electronic warfare. Practical cryptosystems are analysed with regard to the assumptions with which they were designed, their limitations, failure modes and ultimately why most end up broken.

ELEC5619 Object Oriented Application Frameworks
Credit points: 6 Session: Semester 2 Classes: 3 hours project work in class per week. Assumed knowledge: Java programming, and some web development experience is essential. Databasing highly recommended. Campus: Camperdown/Darlington Mode of delivery: Normal (lecture/lab/tutorial) Day

This unit aims to introduce students to the main issues involved in producing large Internet systems by using and building application frameworks. Great reuse so developers do not have to design and implement applications from scratch, as students have done in ELEC3610. The unit lays down the basic concepts and hands on experience on the design and development of enterprise systems, emphasizing the development of systems using design patterns and application frameworks. A project-based approach will introduce the problems often found when building such systems, and will require students to take control of their learning. A project-based approach will introduce the problems often found when building such systems, and will require students to take control of their learning. Several development Java frameworks will be used, including Spring, Hibernate, and others. Principles of design patterns will also be studied.

HIMT5058 Health Informatics Applications
Credit points: 6 Teacher/Coordinator: Professor Robert Steele Session: Semester 1 Classes: Block mode workshop, three 6-hours and two 3-hours Assessment: Presentation (25%), Assignment 1 2000 words (25%), Assignment 2 (50%) Campus: Cumberland Mode of delivery: Block Mode

This unit of study utilises case study analysis, review of contemporary literature and presentations to explore different health informatics topic areas. Students are provided with the opportunity to develop and enhance their information seeking and critical appraisal skills as they investigate and report on key themes, issues and trends in health informatics. A focus of the unit will be reviewing and investigating current and future technology applications such as: telemedicine and health in the home, web-based applications, cyber-consultations and wireless technology.

HIMT5060 Integration for Health Informatics
Credit points: 6 Teacher/Coordinator: Professor Robert Steele Session: Semester 2 Classes: Block mode three 7-hour workshops Assessment: Presentation (10%), Assignment 1 (20%), Assignment 2 (70%) Campus: Cumberland Mode of delivery: Block Mode

This unit aims to provide an understanding of the organisational, people and social issues related to the successful implementation and use of health information systems in health care organisations. In this unit there is an analysis of relevant theories and principles as an understanding of these frameworks is essential for the successful diffusion of health information systems. Information and communication technology integration is challenging as healthcare organisations are complex and diverse with a variety of professionals working within them. This unit will cover issues that are often seen as barriers to information diffusion such as: organisational culture; communication; change management and work flow.
HIMTS808 Health Care Systems
Credit points: 6 Teacher/Coordinator: Professor Robert Steele Session: Semester 1, Semester 2 Classes: Distance Education 9 to 12 hours of self-directed study per week Assessment: Assignment 1 1,500 words (20%), Assignment 2 3,000 words (40%) End of Semester Exam (40%) Campus: Cumberland Mode of delivery: Distance Education
Note: Department permission required for enrolment in the following sessions: Semester 1
This unit provides an introduction to health care systems with an emphasis on the Australian health care system. Topics covered include Commonwealth and State responsibilities for health with a particular focus on funding issues, healthcare expenditure, the structure and organisation of health care facilities and the health workforce. The health of the Australian population is considered and compared internationally, and the health and of indigenous Australians is reviewed in depth. The unit encourages a critical appraisal of current health arrangements and policies and an appreciation of the pluralistic nature of the health system.

INFO5010 IT Advanced Topic A
Credit points: 6 Session: Semester 1, Semester 2, Summer Late Classes: One 2 hour scheduled small-group class per week. Prerequisites: Permission of Head of School Prohibitions: INFO4010 Campus: Camperdown/Darlington Mode of delivery: Normal (lecture/lab/tutorial) Day
Note: Department permission required for enrolment
This unit will cover some topic of active and cutting-edge research within IT; the content of this unit may be varied depending on special opportunities such as a distinguished researcher visiting the University.

INFO5011 IT Advanced Topic B
Credit points: 6 Session: Semester 1, Semester 2 Classes: One 2 hour scheduled small-group class per week. Prerequisites: Permission of Head of School Prohibitions: INFO4011 Campus: Camperdown/Darlington Mode of delivery: Normal (lecture/lab/tutorial) Day
Note: Department permission required for enrolment
This unit will cover some topic of active and cutting-edge research within IT; the content of this unit may be varied depending on special opportunities such as a distinguished researcher visiting the University.

INFO5301 Information Security Management
Credit points: 6 Session: Semester 1 Classes: 2 hrs of lecture, 1 hr of lab/tut per week Assumed knowledge: Basic IT knowledge of databases and networks. Campus: Camperdown/Darlington Mode of delivery: Normal (lecture/lab/tutorial) Day
This unit will provide a broad information architectural view of IT security. Topics covered will include (i) the relationship between security needs and organization structure, (ii) risk assessment, (iii) design and implementation of security policies (iv) compliance with industry standards (v) monitoring services for security at the network, computer and human level, (vi) response to security breaches and disaster recovery. The course will decouple itself from the traditional association of security with cryptography.

INFO5990 Professional Practice in IT
Credit points: 6 Session: Semester 1, Semester 2 Classes: (Lec 2hrs & Tut 1hr) per week Campus: Camperdown/Darlington Mode of delivery: Normal (lecture/lab/tutorial) Day
This Unit of Study introduces the students to some of the concepts, standards and techniques associated with the current professional practice of information technology as part of their involvement in professional practice. The students are presented with a wide range of core conceptual ideas, techniques and relevant professional issues associated with the fields of Interpersonal and Organisational Communication, Conflict Management, IT and Sustainability, IT and Globalisation, Negotiation Strategies, Professional Ethics and Social Implications, Data Quality, Auditing and Quality Assurance and key project management principles. The service sector plays a dominant and growing role in economic growth and employment in most parts of the world and information technology (IT) is a key enabler of this. Services Science, Management and Engineering (SSME) takes a multi-disciplinary approach to services as socio-technical systems. This unit of study offers IT professionals an understanding of the role of IT-centric services in a social, economic and business context as well as knowledge of the principles of their design, engineering and management in a service-oriented computing framework. Delivery of the unit is driven by a critical approach to the literature and live case studies presented by industry professionals. The unit's learning outcomes are driven by stated industry needs.

INFO6007 Project Management in IT
Credit points: 6 Session: Semester 1, Semester 2 Classes: One 2 hour lecture and one 1 hour tutorial per week. Prohibitions: INF6014, PMGT5871 Assumed knowledge: INF5800 or COMP5206 or INFO5990 Campus: Camperdown/Darlington Mode of delivery: Normal (lecture/lab/tutorial) Day
This unit of study covers the factors necessary for successful management of system development or enhancement projects. Both technical and behavioural aspects of project management are discussed. Potential topics of interest could include managing the system life cycle, system and database integration issues, system performance evaluation, managing expectations of team members, cost effectiveness analysis, scheduling and change management.

INFO5012 Business Process Integration
Credit points: 6 Session: Semester 1, Semester 2 Classes: 1 x 3hr seminar per week Assessment: online case study (30%), SAP skills test (35%), final examination (35%) This unit provides an overview of business process integration with the help of packaged software solutions (via the SAP, enterprise resource planning system). It provides students with hands-on skills in using SAP and familiarizes them with all the modules and their functionality with the aim of exploring the concepts of integration and enterprise-wide information systems and their ability to integrate functions across the business. Students gain a thorough understanding of the information and process flows in procurement, production, sales and distribution and financial accounting. Reengineering and configuration of enterprise systems and the architecture requirements for successful implementation of packaged software solutions is also covered.

INFO6017 Strategic Information & Knowledge Mgmt
Credit points: 6 Session: Semester 2 Classes: 1 x 3hr seminar per week Assessment: Class activities (10%); Individual research project (30%); Group Assignment (30%); Final Exam (30%).
In today's digital information society it is essential that organizations have effective strategies for generating, managing and obtaining value from their information and knowledge assets. It requires an understanding of the national policy, legal, technological and business imperatives that shape information design. INF6017 adopts a design thinking approach that focuses on innovation and sustainability in the design and management of information products and services. We use industry case studies to develop in-depth knowledge of information management theory and hands-on design workshops to develop your knowledge and skills in the use of key design methods and tools (e.g. user-centred service design, information audit, information needs analysis, user modelling).

PMGT6867 Quantitative Methods: Project Management
Credit points: 6 Session: Semester 1, Semester 2 Classes: Session 1: 3 hours per week (evening); Session 2: Online Campus: Camperdown/Darlington Mode of delivery: Normal (lecture/lab/tutorial) Evening
This unit has been designed to teach understanding of the
principles to plan, manage and deliver project scope, time and cost.
- To develop underpinning knowledge of scope, time and cost management as applied to projects
- To provide practical examples and opportunities to apply the relevant section of PMBOK to understanding the management of scope, time and cost on projects
- To initiate process of reflective learning and evidence development for competencies in the areas of scope, time and cost management.

Topics include:
- Project Integration
- Project Scope Management
- Project Time Management
- Project Cost Management
- Project Quality Management
- Project Risk Management

Textbooks

Project units of study

COMP5703 Information Technology Project
Credit points: 12 Session: Semester 1, Semester 2 Classes: Eight hours of practical work per week. Campus: Camperdown/Darlington Mode of delivery: Normal (lecture/lab/tutorial) Day
Note: Department permission required for enrolment.

Research Path units of study

COMP5702 IT Research Project A
Credit points: 12 Session: Semester 1, Semester 2 Classes: Eight hours of practical work per week. Campus: Camperdown/Darlington Mode of delivery: Normal (lecture/lab/tutorial) Day
Note: Department permission required for enrolment.

COMP5704 IT Research Project B
Credit points: 6 Session: Semester 1, Semester 2 Classes: Four hours of practical work per week. Campus: Camperdown/Darlington Mode of delivery: Normal (lecture/lab/tutorial) Day
Note: Department permission required for enrolment.

INFO5993 IT Research Methods
Credit points: 6 Session: Semester 1, Semester 2 Classes: One 2 hour scheduled small-group class per week, plus private work (including interaction with research supervisors). Prohibitions: INFO4990 Assumed knowledge: Elementary statistics Campus: Camperdown/Darlington Mode of delivery: Normal (lecture/lab/tutorial) Day
Note: Department permission required for enrolment

This unit will provide an overview of the different research methods that are used in IT. Students will learn to find and evaluate research on their topic and to present their own research plan or results for evaluation by others. The unit will develop a better understanding of what research in IT is and how it differs from other projects in IT. This unit of study is required for students in IT who are enrolled in a research project as part of their Honours or MIT/MITM degree. It is also recommended for students enrolled or planning to do a research degree in IT and Engineering.
# MIT Majors: Tables

- Database Management Systems Major
- Software Engineering Major
- Computer Networks Major

## Units offered in 2011

### Foundational Units

<table>
<thead>
<tr>
<th>Units</th>
<th>S1 &amp; S2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Database Management Systems</td>
<td>COMP5138</td>
</tr>
<tr>
<td>Knowledge Discovery and Data Mining</td>
<td>COMP5318</td>
</tr>
<tr>
<td>Multimedia Storage &amp; Retrieval</td>
<td>COMP5425</td>
</tr>
<tr>
<td>Statistical Natural Language Processing</td>
<td>COMP5046</td>
</tr>
</tbody>
</table>

### Specialist Units

<table>
<thead>
<tr>
<th>Units</th>
<th>S1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced Data Models</td>
<td>COMP5338</td>
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<table>
<thead>
<tr>
<th>Units</th>
<th>S2</th>
</tr>
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<tbody>
<tr>
<td>Knowledge Discovery and Data Mining</td>
<td>COMP5318</td>
</tr>
<tr>
<td>Multimedia Storage &amp; Retrieval</td>
<td>COMP5425</td>
</tr>
<tr>
<td>Statistical Natural Language Processing</td>
<td>COMP5046</td>
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</table>

### Specialist Units: 12 & 18 cp projects*

<table>
<thead>
<tr>
<th>Units</th>
<th>S2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information Technology Project</td>
<td>COMP5703 (12 credit points)</td>
</tr>
<tr>
<td>Equivalent to 2 Specialist Units in this Major</td>
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### Mandatory Specialist Units

<table>
<thead>
<tr>
<th>Units</th>
<th>S1 &amp; S2</th>
</tr>
</thead>
<tbody>
<tr>
<td>non-Research Path</td>
<td>Professional Practice in IT</td>
</tr>
<tr>
<td>INFO5990</td>
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</table>

### Research Path only

<table>
<thead>
<tr>
<th>Units</th>
<th>COMP5702+COMP5704 (18 cp)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equivalent to 3 Specialist Units in this Major</td>
<td></td>
</tr>
</tbody>
</table>

### Research Path only

<table>
<thead>
<tr>
<th>Units</th>
<th>INFO5993</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT Research Methods</td>
<td></td>
</tr>
</tbody>
</table>

Inclusion of a COMP-coded Project unit of study in these majors requires the permission of the School of IT.

COMP5703 requires a credit average over the first four units to allow a student to enrol.

COMP5702/5704 Research Path requires a Distinction average over the first four units to allow a student to enrol.
# Multimedia Technology Major

## Computer Science Major

### Units offered in 2011

<table>
<thead>
<tr>
<th>Foundational Units (maximum 24 cp can be taken)</th>
<th>Multimedia Technology</th>
<th>Computer Science</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1 &amp; S2</td>
<td>Digital Media Fundamentals COMP5114</td>
<td>Algorithms COMP5211</td>
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<tr>
<td></td>
<td>Multimedia Storage, Retrieval &amp; Delivery COMP5425</td>
<td>Computational Geometry COMP5045</td>
</tr>
<tr>
<td></td>
<td>Multimedia Authoring and Production COMP5415</td>
<td>Statistical Natural Language Processing COMP5046</td>
</tr>
<tr>
<td></td>
<td>MAX. 1 UNIT FROM COMPUTER SCIENCE MAJOR</td>
<td>Pervasive Computing COMP5047</td>
</tr>
<tr>
<td></td>
<td>Image Processing and Computer Vision ELEC5613 (not available in 2012)</td>
<td>Information Visualisation COMP5048</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Computational Methods for Life Sciences COMP5456</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Specialist Units (minimum 24 cp must be taken)</th>
<th>Information Technology Project</th>
<th>Research Path only</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>COMP5703 (12 credit points)</td>
<td>IT Research Project</td>
</tr>
<tr>
<td></td>
<td>Equivalent to 2 Specialist Units in this Major</td>
<td>COMP5702+COMP5704 (18 cp)</td>
</tr>
<tr>
<td>S2</td>
<td></td>
<td>Equivalent to 3 Specialist Units in this Major</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Specialist Units: 12 &amp; 18cp projects*</th>
<th>Information Technology Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>S2</td>
<td>COMP5703 (12 credit points)</td>
</tr>
<tr>
<td></td>
<td>Equivalent to 2 Specialist Units in this Major</td>
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</table>

<table>
<thead>
<tr>
<th>Mandatory Specialist Units (Only one of these to be taken)</th>
<th>Information Technology Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1 &amp; S2</td>
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<td></td>
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**COMP5703** requires a credit average over the first four units to allow a student to enrol.

**COMP5702/5704** Research Path requires a Distinction average over the first four units to allow a student to enrol.
## - Telecommunications Engineering Major

<table>
<thead>
<tr>
<th>Units offered in 2011</th>
<th>Telecommunications Engineering</th>
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<tbody>
<tr>
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<td>Internet Protocols COMP5116</td>
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<tr>
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<td>S1 &amp; S2</td>
</tr>
<tr>
<td>S1 &amp; S2</td>
<td></td>
</tr>
<tr>
<td>S1</td>
<td>Error Control Coding ELEC5507</td>
</tr>
<tr>
<td>S2</td>
<td>Mobile Networks ELEC5509</td>
</tr>
<tr>
<td>S2</td>
<td>Optical Communication Systems ELEC5511</td>
</tr>
<tr>
<td>S2</td>
<td>Advanced Network Technologies COMP5416</td>
</tr>
<tr>
<td>S2</td>
<td>Wireless Engineering ELEC5508</td>
</tr>
<tr>
<td>S2</td>
<td>Satellite Communications Systems ELEC5510</td>
</tr>
<tr>
<td>S2</td>
<td>Optical Networks ELEC5512</td>
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<tr>
<td>S2</td>
<td>Information Technology Project COMP5703 (12 credit points)</td>
</tr>
<tr>
<td></td>
<td>Equivalent to 2 Specialist Units in this Major</td>
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<tr>
<td>S2</td>
<td>Research Path only</td>
</tr>
<tr>
<td></td>
<td>IT Research Project</td>
</tr>
<tr>
<td></td>
<td>COMP5702+COMP5704 (18 cp)</td>
</tr>
<tr>
<td></td>
<td>Equivalent to 3 Specialist Units in this Major</td>
</tr>
<tr>
<td>S2</td>
<td>non-Research Path</td>
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<tr>
<td></td>
<td>Professional Practice in IT INFO5990</td>
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<tr>
<td>S1 &amp; S2</td>
<td>Research Path only</td>
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<tr>
<td></td>
<td>IT Research Methods INFO5993</td>
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</tbody>
</table>

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### Business Information Systems Major

#### Foundational Units
*(maximum 24 cp can be taken)*

<table>
<thead>
<tr>
<th>Term</th>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1 &amp; S2</td>
<td>INFO5301</td>
<td>Information Security Management</td>
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<tr>
<td>S1</td>
<td>INFS6012</td>
<td>Business Process Integration</td>
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<tr>
<td>S2</td>
<td>COMP5348</td>
<td>Enterprise Scale Software Architecture</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Term</th>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>INFO5990</td>
<td>Professional Practice in IT</td>
</tr>
</tbody>
</table>

#### Specialist Units
*(minimum 24 cp must be taken)*

<table>
<thead>
<tr>
<th>Term</th>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>COMP5703</td>
<td>Information Technology Project</td>
</tr>
<tr>
<td>S2</td>
<td>INFO5001</td>
<td>Systems Analysis and Modeling</td>
</tr>
<tr>
<td>S2</td>
<td>INFO5991</td>
<td>Services Science Management and Engineering</td>
</tr>
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</table>

#### Research Path only

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>COMP5702</td>
<td>IT Research Project</td>
</tr>
<tr>
<td>COMP5704</td>
<td>IT Research Methods</td>
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</table>

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**COMP5702/5704** Research Path requires a Distinction average over the first four units to allow a student to enrol.

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### Project Management Major

#### Foundational Units
*(maximum 24 cp can be taken)*

<table>
<thead>
<tr>
<th>Term</th>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>S1 &amp; S2</td>
<td>INFO5301</td>
<td>Information Security Management</td>
</tr>
<tr>
<td>S1</td>
<td>INFS6017</td>
<td>Strategic Information &amp; Knowledge Management</td>
</tr>
<tr>
<td>S2</td>
<td>INFO5990</td>
<td>Professional Practice in IT</td>
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</tbody>
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<thead>
<tr>
<th>Term</th>
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</tr>
</thead>
<tbody>
<tr>
<td>S2</td>
<td>COMP5703</td>
<td>Information Technology Project</td>
</tr>
<tr>
<td>S2</td>
<td>INFO5993</td>
<td>IT Research Methods</td>
</tr>
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</table>

#### Specialist Units
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<table>
<thead>
<tr>
<th>Term</th>
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<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>S2</td>
<td>COMP5702</td>
<td>IT Research Project</td>
</tr>
<tr>
<td>S2</td>
<td>COMP5704</td>
<td>IT Research Methods</td>
</tr>
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</table>

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<th>Term</th>
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<tbody>
<tr>
<td>S2</td>
<td>INFO5001</td>
<td>Systems Analysis and Modeling</td>
</tr>
<tr>
<td>S2</td>
<td>INFO5991</td>
<td>Services Science Management and Engineering</td>
</tr>
<tr>
<td>S2</td>
<td>PMGT6867</td>
<td>Quantitative Methods: Project Management</td>
</tr>
</tbody>
</table>

**Inclusion of a COMP-coded Project unit of study in these majors requires the permission of the School of IT.**

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**COMP5702/5704** Research Path requires a Distinction average over the first four units to allow a student to enrol.
### Health Informatics Major

<table>
<thead>
<tr>
<th>Units offered in 2011</th>
<th>Health Informatics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Foundational Units</strong> (maximum 24 cp can be taken)</td>
<td><strong>Introduction to Information Systems</strong>&lt;br&gt;COMP5206</td>
</tr>
<tr>
<td>S1 &amp; S2</td>
<td><strong>IT in Biomedicine</strong>&lt;br&gt;COMP5424 <strong>compulsory for this major</strong> OR HIMT5057 <em>(not available in 2011)</em></td>
</tr>
<tr>
<td><strong>Specialist Units</strong> (minimum 24 cp must be taken)</td>
<td><strong>Project Management in IT</strong>&lt;br&gt;INFO6007</td>
</tr>
<tr>
<td>S1</td>
<td><strong>Introduction to Health Informatics</strong>&lt;br&gt;HIMT5057 <em>(not available in 2011)</em> <strong>compulsory for this major</strong>&lt;br&gt;OR COMP5424</td>
</tr>
<tr>
<td><strong>Specialist Units</strong>: 12 &amp; 18 cp projects*</td>
<td><strong>Health Care Systems</strong>&lt;br&gt;HIMT5069</td>
</tr>
<tr>
<td>S2</td>
<td><strong>Integration of Health Informatics</strong>&lt;br&gt;HIMT5060</td>
</tr>
<tr>
<td><strong>Mandatory Specialist Units</strong> (Only one of these to be taken)</td>
<td><strong>Information Technology Project</strong>&lt;br&gt;COMP5703 <em>(12 credit points)</em>&lt;br&gt;Equivalent to 2 Specialist Units in this Major</td>
</tr>
<tr>
<td>S1 &amp; S2</td>
<td><strong>Research Path only</strong>&lt;br&gt;IT Reseach Project&lt;br&gt;COMP5702+COMP5704 <em>(18 cp)</em>&lt;br&gt;Equivalent to 3 Specialist Units in this Major</td>
</tr>
</tbody>
</table>

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**COMP5702/5704** Research Path requires a Distinction average over the first four units to allow a student to enrol.