Information and Communication Technologies International Guide 2013

swinburne.edu.au/international
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Welcome from the Deans

The Faculty of Information and Communication Technologies has a strong international orientation. Our particular academic strengths lie in software engineering, internet technologies, networks and security, business information systems, IT project management and supercomputing with application to astronomy and digital media.

The faculty is committed to offering courses which address the needs of industry. We prepare our graduates for challenging employment and career development. Our curricula are continually reviewed by our academic and industry advisory committees. We are especially proud of the industry projects in our programs which foster excellent employment outcomes for graduates.

We offer a wide range of undergraduate courses, providing industry knowledge and skills in business information systems, network design and security, software development, games development, computing and telecommunications systems.

At the postgraduate level we offer students the opportunity to specialise in areas including software development, networks and telecommunications, digital forensics, information systems analysis and management, and IT project management. We also offer an innovative online masters degree in astronomy that is available to international students studying in countries other than Australia.

The faculty is host to several major research centres including the Centre for Astrophysics and Supercomputing, Centre for Computer Engineering and Software Systems, the Centre for Advanced Internet Architectures, and an emerging Centre in Information Systems. These centres support a community of more than 100 research students undertaking PhD and master by research degrees. In 2012, the Academic Ranking of World Universities listed Swinburne in the top 400 universities worldwide – in the top three in Melbourne.

We invite you to become a highly valued student at Swinburne.

Leon Sterling
Dean

Sebastian Ng
Associate Dean (International)
Swinburne is ranked in the top 400 universities in the world by the prestigious Academic Ranking of World Universities – that’s in the top three in Melbourne.

Swinburne is a progressive university offering courses in many key disciplines. We are committed to quality teaching and learning outcomes, and our courses offer students the skills and knowledge that employers want.

**Career-ready graduates**
At Swinburne, our focus is on preparing you for a successful career. We maintain close relationships with industry partners to ensure you learn what you need to know. With opportunities such as industry placements, professionally focused team projects and international study, you can get the skills and experience you need, not just the theory.

**Accommodation**
From the on-campus residential college and student apartments, to off-campus private rental and share accommodation, there is a range of housing options available. Visit [www.international.swinburne.edu.au/accommodation](http://www.international.swinburne.edu.au/accommodation) for more information.

**World-ranked university**
Swinburne is an internationally recognised research-intensive university. The 2012 Academic Ranking of World Universities placed Swinburne among the top 400 universities worldwide and top three in Melbourne. The QS World University Rankings also placed Swinburne among the top three per cent of universities worldwide.

A truly international institution, Swinburne has developed partner relationships with more than 90 universities around the world and has been teaching at its Sarawak campus in Malaysia for more than 10 years.

**A wide range of course options**
Swinburne offers qualifications ranging from Foundation Studies, certificates, diplomas, bachelor and master degrees to PhDs. These options allow you to choose courses and pathways to suit your individual interests and career aspirations.

**Modern and safe campuses**
Swinburne has campuses in the inner and eastern suburbs of Melbourne, one in the Melbourne CBD and one in Sarawak, Malaysia. We offer supportive, secure and peaceful environments with state-of-the-art multimedia lecture theatres, many brand-new buildings, well-stocked libraries, up-to-date computer labs and wi-fi connectivity. Accommodation is available on campus at Hawthorn, so our students get the most out of their studies.
Swinburne’s Hawthorn campus

Hawthorn campus

Student population: 22,000
Distance from Melbourne city centre: 6 km (10 to 15 minutes by train)

Swinburne’s main campus is in the inner-city suburb of Hawthorn. Set among the cafés, boutiques and bookshops of Glenferrie Road, and with the convenience of supermarkets and a train station practically on campus, it offers an ideal balance between studies and lifestyle.

There are several on-campus accommodation options, or you could choose to live nearby and walk to class through the tree-lined streets.

The campus has many specialised facilities and is the hub of our research and development activities. It is also home to Swinburne College, offering English language, foundation and degree transfer programs.

Campus facilities include accommodation, a library, computer labs, wireless internet, a gym, a bookshop, cafés and a brand-new student facilities building featuring study areas, a games room, counselling services and health services.

Hawthorn is one of Melbourne’s most beautiful residential areas; many of Melbourne’s exclusive private schools and colleges are located here.

Melbourne

Capital city of the state of Victoria, Melbourne is recognised as one of the world’s most liveable cities. Home to almost four million people, it is considered Australia’s cultural, culinary and sporting capital and is host to the Australian Open Tennis Championships and the Formula One Grand Prix. A mild climate, affordable living costs, an extensive public transport network and an abundance of parkland and public space combine to provide a great way of life.

Melbourne is one of the world’s most culturally diverse communities with residents from over 140 nations.
ICT at Swinburne

Industry focused courses
Swinburne’s ICT courses are designed in consultation with industry to meet the needs of employers and market demand. Our courses cover the latest changes in areas such as J2EE, .NET, CMMI, Oracle, MCITP, information systems and CISCO.

ICT students develop attributes keenly sought by employers: communication skills, teamwork, business understanding and professionalism. Curriculum is guided by senior representatives from the ICT industry.

Wide range of courses
The Faculty of Information and Communication Technologies offers bachelor degrees from business information systems to technical computing applications and telecommunications. Postgraduate courses include information technology, network systems, information systems and project management providing a broad range of unique specialisation programs as follows:

- software development
- information systems analysis and management
- IT project management
- networks and telecommunications

In addition, a Master of Information Systems Management may be combined with an MBA.

Employment opportunities
We offer a three-day ICT Professional Employment Program, available to international students that helps assist you with future career management in the ICT industry. An Internship Project is also available, and as part of this unit you will be assigned an ICT project for a real industry client. Projects will be carried out under the supervision of an industry professional, with additional supervision provided by staff from the Faculty of ICT.

Professional recognition
All ICT courses are registered with the Australian Computer Society (ACS) at the highest level (Professional Level), with the exception of the Bachelor of Engineering (Software Engineering).

Our Bachelor of Engineering (Telecommunication and Network Engineering) is fully accredited with Engineers Australia. On completion of the degree, you are eligible to apply for membership of Engineers Australia.

Study abroad
Swinburne is proud of its history of providing a range of ways for students to have an overseas experience while studying. We provide ICT study abroad and exchange programs in a range of countries so you can experience study and life in another country with our partner institutions. Scholarships may be available to help support you getting there and back.

Facilities at Hawthorn campus

- ICT computer labs, available seven days a week until late
- access to the ‘Library Late Lab’, open 24 hours every day
- student ‘Project Hub’, available for Capstone Project students.

World-class research
Research underpins and invigorates all Swinburne activities. Our ICT research ensures that our undergraduate and postgraduate courses remain leading edge, and gives students the opportunity to follow their research passion and participate in world-changing ICT projects.

Pathways to further ICT studies
Offering courses from Foundation to PhD level, Swinburne makes it easy to pathway between different course levels.

Foundation Studies and UniLink diplomas
Foundation Studies and UniLink diplomas, delivered by Swinburne College, are designed to prepare you for direct entry to a bachelor degree at Swinburne. You’ll enjoy smaller classes, more academic support and one-on-one time with your teachers, giving you every opportunity to succeed in your university studies.

TAFE to degree pathways
Swinburne’s TAFE diplomas and advanced diplomas offer independent learning with an emphasis on workplace and practical skills. Graduates of a diploma or advanced diploma can pathway into a Swinburne undergraduate degree, subject to academic performance requirements. The Swinburne pathways program allows you to gain the maximum benefit from your previous studies, within Australia or overseas. You’ll receive credit for your studies, allowing you to advance into later stages of your chosen degree.

Undergraduate to postgraduate studies
Undergraduate students are encouraged to continue into an honours year or further postgraduate studies in our specialist research areas.

After completion of any ICT bachelor degree, you may progress directly into a one-year master degree in your discipline of study.

Professional projects
A key feature of the undergraduate ICT programs at Swinburne is the requirement for all students to undertake a professionally-focused major project in their final year of study. The final-year projects utilise authentic activities and challenges in a supportive and collaborative environment. Projects may be externally sourced industry and community projects, competitions, research-based projects or internally developed project briefs including student-initiated projects.

In conjunction with the Glen Eira City Council, students (pictured) undertake the development of a new website for an optometrist business, and determining the best industry software package for a dental clinic.

Internship project
The Internship Project is a final semester unit in the Master of Information Technology, Master of Information Technology (Professional Computing), Master of Technology (IT) and Master of Science (Network Systems).

The Internship Project aims to assist students to further develop professional and personal skills and encourages them to apply practical skills and theoretical knowledge in an IT industry context.

Students participate in a wide range of organisational projects. Project areas include: system design and development, research and development, web development, business analysis, testing and user liaison. Pictured, Diana Adjie helped to develop a new programming platform for the LED tickers that run across the buildings at Melbourne’s Federation Square.

Specialist units
With nearly two million smart phones sold worldwide every day, designing the applications that run these services has quickly become the skill sought by employers.

Swinburne offers a number of units where students use the Android and iOS platforms to learn how to build data-driven applications. Students learn Objective-C, Apple’s main programming language, as well as gain skills in using Apple’s Cocoa Touch API to create responsive, functional data-driven applications.
The Faculty of Information and Communication Technologies (ICT) offers master by research and doctor of philosophy programs to high achieving students who want to pursue a research degree.

The Faculty of ICT at Swinburne is host to the following key university research centres, which provide the focal points of research in the faculty.

**Centre for Astrophysics and Supercomputing**

The Centre for Astrophysics and Supercomputing (CAS) has specific research interest in astronomy visualisation, star and planet formation, pulsars, globular clusters, super massive black holes, galaxy evolution and Big Bang cosmology.

**Focus areas include:** Square Kilometre Array project, theoretical astrophysical observatory and black holes in dense star clusters. Regular telescope time at major observatories including the Anglo-Australian Observatory, Australia Telescope Compact Array, W. M. Keck Observatory, the Gemini Observatory, and the Hubble Space Telescope Treasury Program.

**Centre for Advanced Internet Architectures**

The centre has research interest in IP networking architectures with emphasis on developing solutions for engineering problems facing the internet.

**Focus areas include:** Leveraging 3D Game Engines, surveying the internet’s NAT growth, Global Research into Energy Efficient Networking, Mobile Applications and Global Internet Communications, Lawful Interception for Everybody.

**Centre for Computing Engineering and Software Systems**

The centre has a primary focus on software research with emphasis on knowledge and data intensive systems, next generation software platforms, SE education and IBL/RBL, software analysis and testing, software research and development.

**Focus areas include:** Novel cloud computing based workflow technology for managing large numbers of process instances, Context-aware Vehicles for managing and integrating in-vehicle functions and external services, Agent-Enabled Social Networks including peer-to-peer social networks and 3D virtual environments, Web-based information Visualisation and Navigation, Trauma Reception and Resuscitation and cloud broker supporting users to select the most appropriate cloud configuration.

Other research areas within the Faculty of Information and Communication Technologies include Molecular Simulation, Research into Information Systems in Organisations and Computer Science and Software Engineering group.

For further information visit: www.swinburne.edu.au/ict/research

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**How to apply for a research degree in ICT**

**Decide on a research topic**
Prepare a 150–200 word outline of the proposed research topic that you would like to undertake.

**Talk with a researcher from one of our centres**
Individual centres may be contacted through the web link below. Your enquiry will be forwarded to a person in your area of research interest.

**Submit an application for admission**
With your application you will need to supply certified copies of:

- evidence of prior degree completion (specifically demonstrating research background)
- certified academic transcripts
- resume of any relevant work experience
- 150–200 word outline of the proposed research topic

www.swinburne.edu.au/ict/research
The Swinburne Intelligent Transport Systems Laboratory is a joint collaboration between VicRoads and the Faculty of ICT which will analyse live traffic data to gain insight into network congestion and develop better mechanisms for managing car flows. The research will be fed directly back to VicRoads’ head office in order to improve traffic management strategies, such as timing for traffic lights, variable speed limits and freeway ramp signals.

Associate Professor Hai Vu (left) with Andrew Wall, Manager of Network Operations, VicRoads.
## ICT course entry requirements and fees

<table>
<thead>
<tr>
<th>COURSE</th>
<th>ACADEMIC ENTRY REQUIREMENTS</th>
<th>ENGLISH LANGUAGE IELTS REQUIREMENTS*</th>
<th>2013 INDICATIVE ANNUAL COURSE FEE#</th>
<th>DURATION</th>
<th>INTAKE</th>
<th>PAGE</th>
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<td>Undergraduate</td>
<td></td>
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<tr>
<td>Bachelor of Business Information Systems</td>
<td>Australian Year 12 score of 70, or equivalent</td>
<td>6.5</td>
<td>A$21,750</td>
<td>3 years</td>
<td>Feb, Aug</td>
<td>11</td>
</tr>
<tr>
<td>Bachelor of Engineering (Software Engineering)</td>
<td>Australian Year 12 score of 70, or equivalent, Prerequisite: AM or SM**</td>
<td>6.5</td>
<td>A$25,750</td>
<td>4 years</td>
<td>Feb</td>
<td>11</td>
</tr>
<tr>
<td>Bachelor of Engineering (Telecommunication and Network Engineering)</td>
<td>Australian Year 12 score of 70, or equivalent, Prerequisite: AM or SM**</td>
<td>6.5</td>
<td>A$25,750</td>
<td>4 years</td>
<td>Feb, Aug</td>
<td>11</td>
</tr>
<tr>
<td>Bachelor of Information and Communication Technology</td>
<td>Australian Year 12 score of 70, or equivalent</td>
<td>6.5</td>
<td>A$21,750</td>
<td>3 years</td>
<td>Feb, Aug</td>
<td>13</td>
</tr>
<tr>
<td>Bachelor of Information and Communication Technology (Network Design and Security)</td>
<td>Australian Year 12 score of 70, or equivalent</td>
<td>6.5</td>
<td>A$21,750</td>
<td>3 years</td>
<td>Feb</td>
<td>13</td>
</tr>
<tr>
<td>Bachelor of Science (Computer Science and Software Engineering)</td>
<td>Australian Year 12 score of 70, or equivalent, Prerequisite: AM or SM**</td>
<td>6.5</td>
<td>A$21,750</td>
<td>3 years</td>
<td>Feb, Aug</td>
<td>13</td>
</tr>
<tr>
<td>Bachelor of Science (Games Development)</td>
<td>Australian Year 12 score of 70, or equivalent</td>
<td>6.5</td>
<td>A$21,750</td>
<td>3 years</td>
<td>Feb</td>
<td>14</td>
</tr>
<tr>
<td>Bachelor of Science (Information Technology)</td>
<td>2–3 years of IT tertiary studies or equivalent</td>
<td>6.5</td>
<td>A$21,750</td>
<td>1.5 years</td>
<td>Feb, Aug</td>
<td>14</td>
</tr>
<tr>
<td>Postgraduate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Master of Information Systems Management</td>
<td>A recognised bachelor degree and at least 3 years relevant business experience</td>
<td>6.5</td>
<td>A$24,850</td>
<td>1.5 years</td>
<td>Feb, Aug</td>
<td>15</td>
</tr>
<tr>
<td>Master of Information Systems Management/ Master of Business Administration</td>
<td>A recognised bachelor degree and at least 3 years relevant business experience</td>
<td>6.5</td>
<td>A$24,850</td>
<td>2.5 years</td>
<td>Feb, Aug</td>
<td>15</td>
</tr>
<tr>
<td>Master of Information Technology</td>
<td>A recognised non-IT bachelor degree</td>
<td>6.5</td>
<td>A$24,850</td>
<td>2 years</td>
<td>Feb, Aug</td>
<td>17</td>
</tr>
<tr>
<td>Master of Information Technology (Technology)</td>
<td>A recognised bachelor degree in IT</td>
<td>6.5</td>
<td>A$24,850</td>
<td>1 year²</td>
<td>Feb, Aug</td>
<td>17</td>
</tr>
<tr>
<td>Master of Information Technology Project Management</td>
<td>A recognised bachelor degree</td>
<td>6.5</td>
<td>A$24,850</td>
<td>1.5 years</td>
<td>Feb, Aug</td>
<td>17</td>
</tr>
<tr>
<td>Master of Science (Network Systems)</td>
<td>A recognised bachelor degree in engineering, technology, science or IT</td>
<td>6.5</td>
<td>A$18,700</td>
<td>2 years¹</td>
<td>Feb, Aug</td>
<td>18</td>
</tr>
<tr>
<td>Master of Engineering Science (Network Systems and Telecommunications)</td>
<td>A recognised bachelor degree in engineering, technology, science or IT</td>
<td>6.5</td>
<td>A$24,850</td>
<td>2 years</td>
<td>Feb, Aug</td>
<td>18</td>
</tr>
<tr>
<td>Master of Information Technology (Professional Computing)</td>
<td>A recognised bachelor degree in IT</td>
<td>6.5</td>
<td>A$18,700</td>
<td>2 years¹</td>
<td>Feb, Aug</td>
<td>19</td>
</tr>
<tr>
<td>Postgraduate by Research</td>
<td></td>
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</tr>
<tr>
<td>Master of Engineering (by research)</td>
<td>Completion of 4 years or equivalent of recognised tertiary education in engineering, technology, science or ICT at a suitably high level</td>
<td>6.5</td>
<td>A$28,500</td>
<td>2 years</td>
<td>Ongoing</td>
<td>n/a</td>
</tr>
<tr>
<td>Master of Science (by research)</td>
<td>as above</td>
<td>6.5</td>
<td>A$28,500</td>
<td>2 years</td>
<td>Ongoing</td>
<td>n/a</td>
</tr>
<tr>
<td>Master of Science (Information Technology) (by research)</td>
<td>as above</td>
<td>6.5</td>
<td>A$24,950</td>
<td>2 years</td>
<td>Ongoing</td>
<td>n/a</td>
</tr>
<tr>
<td>Doctor of Philosophy (Engineering)</td>
<td>as above</td>
<td>6.5</td>
<td>A$28,500</td>
<td>3 years</td>
<td>Ongoing</td>
<td>n/a</td>
</tr>
<tr>
<td>Doctor of Philosophy (Information and Communication Technologies)</td>
<td>as above</td>
<td>6.5</td>
<td>A$24,950</td>
<td>3 years</td>
<td>Ongoing</td>
<td>n/a</td>
</tr>
<tr>
<td>Doctor of Philosophy (Science)</td>
<td>as above</td>
<td>6.5</td>
<td>A$28,500</td>
<td>3 years</td>
<td>Ongoing</td>
<td>n/a</td>
</tr>
</tbody>
</table>

### Pathways
For those who do not meet our undergraduate entry requirements, Swinburne Foundation Studies (Information Technology/Multimedia), Diploma of IT UniLink (degree transfer program) and TAFE diplomas and advanced diplomas offer alternative pathways into our ICT bachelor degrees. For more information see page 6 of this guide.

### English Language Requirements
6.5 = Overall IELTS Academic Score of 6.5 with a minimum of 6.0 in each band (Reading, Writing, Listening and Speaking) OR a TOEFL (Paper-based) minimum score of 575 (with Test of Written English (TWE) score of 5); OR, a TOEFL (Internet-based) minimum score of 90 with no band less than 22.

### Notes
1. You can take the course in accelerated format, completing the course in 1.5 years, in which case you will pay the total course fee over this period. The fee for this program is based on a study load of 75 credit points per year.
2. Course duration assumes 100 credit points of exemptions.
3. A 15% fee reduction applies to the Master of Information Technology if undertaken immediately after successful completion of the Bachelor of Science (Information Technology).
4. The indicative annual course fees detailed in this publication relate to 2013 only. They are based on a standard study load per year. However, please note that fees are assessed according to a student’s study load in each semester, and variation to study load will result in an adjustment to tuition fees. All fees are subject to annual review and may be adjusted.
5. Prerequisite codes: AM – Advanced Mathematics; MA – Mathematics (any); SM – Specialist Mathematics.
6. This program includes a compulsory summer teaching period.
7. A September intake is available for students progressing from UniLink Diploma only.
Undergraduate courses

- Bachelor of Business Information Systems
  
  **Campus:** Hawthorn  
  **Duration:** Three years  
  **Intake:** February, August  

  A September intake is available to students progressing from UniLink diploma.  

  Information systems addresses how people, information, computers, networks and processes come together to create cohesive business solutions. This course provides entry into the management of business information systems in organisations. Students will develop some technical skills, but more emphasis will be placed on business analysis and problem-solving, systems analysis, project management, the provision of IS services, social networking in organisations, mobile business and connectivity, and the management of information systems in organisations.

  **Course structure**  

  Students take a total of 24 units of study including:  

  - 12 information systems core units  
  - four business core units  
  - two professional project units  
  - two IS specialised electives  
  - four electives.

  **Units of study**  


  **Career opportunities**  

  Graduates may find employment in business and systems analysis, business process analysis, business requirements analysis, project management, enterprise systems consultancy, IS/IT consultancy, business relationship management, business development management, and, when you have gained experience, as an IT director or chief information officer.

  **Professional recognition**  

  This degree is accredited at professional level with the Australian Computer Society (ACS). The program has been externally audited by ACS, ensuring it meets the highest standard of the profession and industry.

- Bachelor of Engineering (Software Engineering)
  
  **Campus:** Hawthorn  
  **Duration:** Four years  
  **Intake:** February

  This course is designed to give students a professional understanding of the science and engineering principles underlying software and systems engineering, in addition to a solid foundation in general engineering principles. The course explores both the fundamentals and more advanced topics in software and systems engineering, including design, quality assurance, implementation and deployment. The program also allows students to gain specialised skills in a variety of areas, including telecommunications, robotics and mechatronics, pervasive computing and mobile systems development.

  **Course structure**  

  Students complete a total of 32 units of study including:  

  - 28 software engineering core units  
  - four specialisation units, or  
  - four ICT elective units, or  
  - four-unit minor.

  **Units of study**  


  **Career opportunities**  

  Graduates are prepared for a variety of roles in the telecommunications, networks, banking and finance, manufacturing, internet technologies as well as defence and aerospace industries. A broad range of career opportunities exist including: analyst programmer, web developer, applications designer, integration developer, software engineer, network administrator, product sales and support and ICT management.

- Bachelor of Engineering (Telecommunication and Network Engineering)
  
  **Campus:** Hawthorn  
  **Duration:** Four years  
  **Intake:** February, August

  Telecommunication and network engineers design, implement and facilitate the communication infrastructure of businesses, ensuring information flow is not interrupted or slowed. They are capable of developing sophisticated systems such as cellular mobile communication networks, broadband multimedia computer networks, and radio and television broadcasting systems. This course will provide students with a professional understanding of the science and engineering principles underlying telecommunication and network engineering, and the ability to apply that knowledge. Students will also acquire a detailed understanding of appropriate engineering methods and techniques, and have competence in their application. The course combines detailed theoretical learning with practical experience in networking and signal analysis used in the telecommunications/networking field.

  **Course structure**  

  Students complete a total of 32 units of study including:  

  - 28 engineering core units  
  - four elective units.

  **Units of study**  


  **Career opportunities**  

  A broad range of employment opportunities exists in the following areas: designing/installing telecommunication equipment, project management, optimising network performance, network security and design, analyst designer and network administrator/webmaster.

  **Professional recognition**  

  This course is accredited by Engineers Australia (EA). Graduates may apply for admission to membership of EA at the level of professional engineer. The course has been externally audited by EA, ensuring it meets the highest standard of the profession and industry.
What I liked most about studying at Swinburne was the location of the campus, the lively atmosphere and lifestyle on campus, and the excellent facilities. The support from teachers and staff was also great.

Fernando
Bachelor of Business Information Systems
Bachelor of Information and Communication Technology

**Campus:** Hawthorn  
**Duration:** Three years  
**Intake:** February, August

A September intake is available to students progressing from Unilink Diploma.

This course provides options for studies in software development, business information systems and computer networks. The flexible course structure allows students to choose from a number of computing majors, minors and electives. The course will suit students who are seeking a general ICT course with flexible outcomes. Students will be able to select up to eight elective units from a diverse range of offerings from ICT or other nominated discipline areas. The flexibility of this course also provides enhanced credit arrangements for students articulating from TAFE or overseas diplomas.

**Course structure**  
Students complete a total of 24 units of study including:
- 16 core units
- two minors, or
- one minor and four elective units.

**Units of study**  
**Specialisation areas include:**  
- Business Analysis  
- Business Systems  
- Games Technology  
- Network Technology  
- Software Technology

**Career opportunities**  
Graduates may seek employment in computer programming, game development, internet systems development, multimedia software development, web and mobile applications development, systems analysis and design, database administration, network administration, and computer network support.

**Professional recognition**  
This course is accredited at professional level with the Australian Computer Society (ACS). The course has been externally audited by ACS, ensuring it meets the highest standard of the profession and the industry.

Bachelor of Information and Communication Technology (Network Design and Security)

**Campus:** Hawthorn  
**Duration:** Three years  
**Intake:** February, August

This course has been designed to meet growing industry demand for security specialists who are competent in, and knowledgeable about, computer network technologies and security. Students will study the fundamentals of computing including programming, databases, internet technologies, systems analysis and design, and software engineering, as well as advanced topics in computer networks and security.

Students will gain confidence in evaluating and managing software development tasks, business information systems and security projects, while applying knowledge of internet security.

The course also has a strong industry focus with units that prepare students for professional certification in Cisco Certified Network Associate (CCNA) and Microsoft Certified Solutions Associate (MCSA).

**Course structure**  
Students complete a total of 24 units of study including:
- 16 Network Design and Security core units
- one four-unit minor in IT Security
- one four-unit minor.

**Units of study**  
**Units include:**  

**Career opportunities**  
Skills in network design and security are in high demand and can lead to a range of career outcomes including information security analyst, network security practitioner, information security professional, IT systems administrator, embedded software systems designer, protocol designer, network administrator or IT systems administrator.

**Professional recognition**  
This course is accredited at professional level with the Australian Computer Society (ACS). The program has been externally audited by ACS, ensuring it meets the highest standard of the profession and the industry.

Bachelor of Science (Computer Science and Software Engineering)

**Campus:** Hawthorn  
**Duration:** Three years  
**Intake:** February, August

This course focuses on advanced technologies including software development using C++ and Java, software engineering and software development for the internet. Students will develop extensive skills in software development, experience in working on team projects, and well developed oral and written communication skills.

**Course structure**  
Students complete a total of 24 units of study including:
- 16 Computer Science and Software Engineering core units
- one four-unit minor in Computer Science and Software Engineering
- one four-unit minor or four ICT elective units.

**Units of study**  
**Units include:**  

**Career opportunities**  
Graduates may find employment in organisations engaged in medium- to large-scale software development projects. Career opportunities include applications developer, IT project manager, software architect and programmer.

**Professional recognition**  
This course is accredited at professional level with the Australian Computer Society (ACS). The program has been externally audited by ACS, ensuring it meets the highest standard of the profession and industry.
Bachelor of Science
(Games Development)

Campus: Hawthorn
Duration: Three years
Intake: February

This course focuses on the design and programming of computer games and other interactive software. Students will learn about the creative and design aspects of multimedia and internet technologies, particularly as applied to games development. Major studies include software development using an object-oriented approach and specialist areas in games design and development. The course also includes units in database, networking and project management, and is good preparation for general software design and development careers, as well as specialist careers in the games industry.

Course structure
Students complete a total of 24 units of study including:
- 18 games development core units
- one programming Level 2 unit
- one data communications unit
- four elective units.

Units of study
Units include: Multimedia Applications, 3D Animation and Special Effects, Principles of Game Design, Web Programming, Software Development, Usability, Internet Technologies, Networking and Online Games, Artificial Intelligence for Games, Interactive Games Structure.

Career opportunities
Graduates of this course will be equipped to seek employment in careers such as games developer, Flash developer, game engine programmer, visual effects developer, software design, database programmer, enterprise systems application developer, and project manager. You will also have developed extensive skills in software development, combined with experience in a broad range of creative and design aspects of multimedia and internet technologies.

Professional recognition
This degree is accredited at Professional Level with the Australian Computer Society (ACS). The program has been externally audited by ACS, ensuring it meets the highest standard of the profession and industry.

Bachelor of Science
(Information Technology)

Campus: Hawthorn
Duration: Eighteen months
Intake: February, August

This course is designed for students who have completed a qualification deemed equivalent to two years of a recognised Australian bachelor degree in an IT discipline. The course builds on the knowledge and skills gained in prior studies and focuses on enterprise systems development. It offers a unique opportunity to specialise in software development for the Microsoft .NET framework.

Students have the option of completing the course in one year by undertaking two units during a Summer or Winter term.

Note: A 15% fee reduction applies to the Master of Information Technology if undertaken immediately after successful completion of this course.

Course structure
Students complete up to 10 units of study over two or three semesters. Four units can be taken in each semester, and two may be taken in the fast-track Summer or Winter term.

If you have completed a course with a major in software development or IT you will generally be required to complete eight units over two semesters.

Units of study

Career opportunities
Graduates may seek employment in computer programming, internet systems development, multimedia software development, systems analysis and design, database administration and computer network support.

Professional recognition
This course is accredited at professional level with the Australian Computer Society (ACS). The program has been externally audited by ACS, ensuring it meets the highest standard of the profession and industry.

ICT double-degree options
Combine your ICT degree with another specialised degree and expand your skills and increase your employment opportunities.

Bachelor of Business Information Systems/Bachelor of Commerce
Bachelor of Engineering (Telecommunication and Network Engineering)/Bachelor of Science (Computer Science and Software Engineering)
Bachelor of Engineering (Robotics and Mechatronics)/Bachelor of Science (Computer Science and Software Engineering)
Bachelor of Engineering (Electronics and Computer Systems)/Bachelor of Science (Computer Science and Software Engineering)

Bachelor of Multimedia (Games and Interactivity)/Bachelor of Science (Computer Science and Software Engineering)

For further information visit www.swinburne.edu.au/international/courses
Postgraduate programs

Information systems management

- Master of Information Systems Management

  Incorporating: Graduate Diploma of Information Systems Management

  **Campus:** Hawthorn  
  **Duration:** Eighteen months  
  **Intake:** February, August

  This program is designed for students who have at least three years’ relevant professional experience. The program provides a comprehensive and contemporary study of management issues associated with the successful deployment of information systems and technology within organisations. The program focuses on optimising business value through the management of IS and its related risks. It will enhance students’ career opportunities by teaching current approaches to technology management in and between contemporary organisations.

  **Program structure**  
  The program comprises 12 units of study including nine core units, one project management unit, one information systems practice unit and one elective unit.

  **Units of study**  
  Units include:
  - Business Information Systems for a Rapidly Changing World
  - Delivering IT Business Value
  - IS Governance and Strategy
  - Information Systems Risk and Security
  - Managing IT-Enabled Transformation
  - Contemporary Issues in Business Analysis
  - Accounting Information and Managerial Decision Making
  - Information Systems Project Management
  - Managing IT-Enabled Transformation
  - Enterprise Systems
  - Requirements, Analysis and Modelling
  - Business Data Communications and Networks
  - Business Information Systems Analysis
  - Database Management Systems
  - Process Modelling

  **Career opportunities**  
  The program aims to prepare students for roles in the areas of systems analysis, business development, project management. Roles may also be found as a business analyst, data architect, data warehouse consultant, business intelligence analyst, statistical modeller, application integration specialist, e-business consultant, chief information officer or IT director.

  **Professional recognition**  
  This program is accredited at professional level by the Australian Computer Society (ACS). The program has been externally audited by ACS, ensuring it meets the highest standard of the profession and industry.

- Master of Information Systems Management/Master of Business Administration

  **Campus:** Hawthorn  
  **Duration:** 2.5 years

  This program includes a compulsory summer teaching period.

  **Intake:** February, August

  This program is designed for students who have at least three years’ relevant professional experience. This double degree provides professionals with advanced skills and knowledge across the complex areas of both business and information systems in organisations. The program offers the opportunity to acquire contemporary management knowledge and skills, and provides students with the ability to apply that knowledge in an innovative, creative and entrepreneurial way.

  **Program structure**  
  The program comprises 18 units of study including eight information systems core units, eight business core units, one information systems elective unit and one business elective unit.

  **Units of study**  
  Units include:
  - Business Information Systems for a Rapidly Changing World
  - Information Systems Risk and Security
  - Systems Project Management
  - Contemporary Issues in Business Analysis
  - Enterprise Architecture, Strategy and Planning
  - Accounting Information and Managerial Decision Making
  - Managing the IT Capability
  - Delivering IT Business Value
  - Global ICT Practice
  - Managing IT-Enabled Transformation
  - Strategic and Entrepreneurial Marketing
  - Workforce Leadership and Strategy
  - Business Strategy
  - Business Finance and Quantitative Analysis
  - Leadership for Innovation
  - Operations Management

  **Professional recognition**  
  The Master of Information Systems Management is accredited at professional level with the Australian Computer Society (ACS). The program has been externally audited by ACS, ensuring it meets the highest standard of the profession and industry.

  Swinburne ICT courses are designed in consultation with industry to cover the latest changes in areas such as J2EE, Network Security, .NET, CMMI, Oracle, MCITP, CISCO and Information Systems.
I wanted to come to Swinburne because it’s one of the top-ranked universities in Melbourne. My course provides students with the knowledge they need to understand and contribute to the technology field in today’s society. Studying overseas is not just about acquiring academic knowledge; it’s also about the skills you gain by interacting with other students from different parts of the world.

Andrés
Master of Information Technology
Information technology

- Master of Technology
  - Incorporating: Diploma of Information Technology
  - Campus: Hawthorn
  - Duration: Two years
  - Intake: February, August
  - Note: A 15% fee reduction applies to this course if undertaken immediately after successful completion of the Bachelor of Science (Information Technology).

The Master of Technology (MIT) aims to provide the knowledge and skills required to ensure that graduates can design, develop and maintain complex systems using state-of-the-art technologies and methodologies. Students may choose a general program of study or undertake a specialisation in preparation for focused career opportunities.

- Specialisation areas include:
  - Information Systems Analysis and Management
  - Networks
  - Software Development

Students will have the opportunity to apply their skills through industry-related project work. Options for projects include industry-linked projects for real clients. Such project work can demonstrate students’ skills and knowledge to potential future employers.

- Program structure
  - The MIT is comprised of 16 units of study including eight core units and eight elective units.
  - Note: Applicants who have successfully completed a recognised ICT degree, may be eligible to enrol in the Master of Information Technology (Professional Computing).

- Units of study
  - Units include:
    - Internet Computing
    - Advanced Java and J2EE
    - Reliable Software Engineering
    - Information Systems Modelling and Development
    - eCommerce Systems
    - Enterprise and Systems Architecture
    - Information Systems Management
    - .NET Technology
    - Computer Network Design and Security
    - Internet Technologies
    - Object-Oriented Software Development
    - Service-Oriented Computing
    - Internship Project

Students will also have the opportunity to undertake a research project.

- Career opportunities
  - Graduates will have the practical and theoretical skills needed to enter a range of technical and business-focused roles. Depending on the area of specialisation, graduates will be prepared for senior ICT roles in database design, systems/business analysis, software testing, software engineering and web design and development.

- Professional recognition
  - The program is accredited at professional level with the Australian Computer Society (ACS). The program has been externally audited by ACS, ensuring it meets the highest standard of the profession and industry.

- Professional Project, OR Internship Project, OR

- Information technology project management

- Master of Information Technology
  - Project Management
  - Incorporating: Diploma of Information Technology
  - Campus: Hawthorn
  - Duration: Eighteen months
  - Intake: February, August
  - Note: This program has been designed in consultation with industry to meet an expected growth in demand for qualified ICT project managers, and aims to develop students’ expertise in the major domain of ICT project management. Students will explore the components of ICT projects, and acquire the skills and conceptual understanding required to manage all aspects of ICT projects.

- Program structure
  - The program is comprised of 12 units of study including eight core units and four elective units.

- Units of study
  - Core units
    - Information Systems Project Management
    - Enterprise Systems, OR Information Systems in SMEs
    - Information Systems Risk and Security
    - Systems Acquisition and Implementation Management
    - Global ICT Practice
    - IT Project Resource Management
    - IT Portfolio and Program Management
    - IT Project Management Internship Project, OR IT Project Management Research Project

- Elective units
  - Introduction to Business Information Systems, OR Information Systems Management, OR Business Information Systems for a Rapidly Changing World
  - Database Analysis and Design
  - Requirements, Analysis and Modelling
  - Information Systems Project Management

- Level 2 electives
  - See list of units on page 19.

- Stage 1
  - Six Level 2 core units and two elective units as follows:
    - Level 2 core units
      - Algorithmic Problem Solving, OR Introduction to Programming in .NET
      - Introduction to Business Information Systems, OR Enterprise Technologies and Architectures
      - Internet Technologies
      - Database Analysis and Design
      - Requirements, Analysis and Modelling
      - Information Systems Project Management

- Level 2 elective units
  - See list of units on page 19.

- Stage 2
  - Four advanced units and two advanced elective units as follows:
    - Level 3 core units
      - Professional Issues in Information Technology
      - Professional Project, OR Internship Project, OR Configuring Business Information Systems Solutions
    - Level 3 elective units
      - See list of units on page 19.

- Career opportunities
  - Graduates may find employment in roles such as ICT project manager, business analyst, business intelligence developer, applications manager, project resource officer, enterprise solutions architect, enterprise risk specialist, ICT risk manager or database administrator.

- Professional recognition
  - This program is accredited at professional level with the Australian Computer Society (ACS). The program has been externally audited by ACS, ensuring it meets the highest standard of the profession and industry.
Network systems

■ Master of Science (Network Systems)

Incorporating: Graduate Diploma of Science (Network Systems)
Campus: Hawthorn
Duration: Two years
Intake: February, August

This program is designed for students who have a background in computing, information technology, science or engineering and wish to become professional network specialists. The program will assist students in becoming proficient in all aspects of wired or wireless networks and be conversant with new kinds of networking technology based on internet protocol networks and multimedia applications.

The program has three optional specialised streams:
■ Advanced Networking
■ Network Security
■ Future Networks

Program structure
The program comprises 12 units of study. Eight core units plus four advanced elective units. Unit exemptions of up to 50 credit points (four units) may be obtained for those who have completed a relevant degree.

Units of study
Core units
■ Networks and Routing*
■ Internetworking Technologies*
■ Network Administration (Microsoft 1)
■ Enterprise Network Server Administration (Microsoft 2)*, OR Enterprise Services and Security (Microsoft 3)*
■ Introduction to Network Programming
■ Network Computing
■ Professional Issues in IT
■ Professional Project, OR Internship Project

Specialisations
Advanced Networking
■ Internetwork Routing*
■ Internetwork Switching*
■ Secure Remote Access Networks*
■ Converged Network*

Network Security
■ Secure Networks
■ Enterprise Services and Security*
■ Advanced Security
■ One elective unit*

Future Networks
■ Secure Networks
■ Mobile and Personal Networking
■ Design and Management of Networks, OR Broadband Multimedia Network
■ One elective unit*

Other electives
■ UNIX for Telecommunications
■ Networking and Online Games
■ Simulation of Networks
■ Enterprise Network Server Administration
■ Web Programming
■ Research Methods**
■ Research Paper**
■ Research Report**

* Prepares students for CCNA (Cisco Certified Network Associate) qualification.
** Prepares students for MCSA (Microsoft Certified Solutions Associate) qualification.
# Prepares students for CCNP (Cisco Certified Network Professional) qualification – each unit covers one quarter of CCNP.

Elective undertaken is subject to unit prerequisites.

Career opportunities
Graduates may find employment in the telecommunications or ICT industries in roles such as network engineer, systems administrator, network architect, network designer, IT support, internet applications engineer, manager of internal corporate networks or security engineer.

Professional recognition
This program is accredited at the professional level with the Australian Computer Society (ACS). The program has been externally audited by ACS, ensuring it meets the highest standard of the profession and industry. The program provides preparation towards the CCNA, CCNP and MCSA (Solutions Associate) certification examinations; these certifications are widely recognised and valued in the industry.

■ Master of Engineering Science (Network Systems and Telecommunications)

Campus: Hawthorn
Duration: Two years
Intake: February, August

The course explores the design, management and service provision of private and public network systems. With a major focus on telecommunication systems using wireless and broadband technologies and a Cisco-based approach to the management of networks, the course is designed to provide excellent career opportunities in the areas of telecommunication and network engineering. Specialised knowledge in the field of data communication networking will cover specific competencies of industry certification material such as Cisco CCNA and CCNP and MCSA (Microsoft Certified Solutions Associate).

Program structure
This program incorporates the Master, Graduate Diploma and Graduate Certificate of Science (Network Systems), plus additional advanced-level units in telecommunications and network management to make up the Master of Engineering Science (Network Systems and Telecommunications).

Units of study
Units include:
■ Networks and Routing
■ Network Administration
■ Introduction to Network Programming
■ Internetworking Technologies
■ Network Computing
■ Enterprise Network Server Administration
■ Enterprise Services and Security
■ Professional Issues in IT
■ Internship Project
■ Wireless Communications Techniques
■ Design and Management of Networks
■ Mobile and Personal Networking
■ Elective units

Career opportunities
Graduates may find employment in roles such as network engineer, field service technician, support engineer, systems administrator, network planner, IT security firewall administrator, network architect, network designer, project implementation, internet applications engineer, manager of internal corporate networks or security engineer.

Professional recognition
This program is accredited at the professional level with the Australian Computer Society (ACS). The program has been externally audited by ACS, ensuring it meets the highest standard of the profession and industry. The program provides preparation towards the CCNA, CCNP and MCSA (Solutions Associate) certification examinations; these certifications are widely recognised and valued in the industry.
Professional computing

Master of Information Technology (Professional Computing)

Incorporating: Graduate Diploma of Information Technology (Professional Computing)

Campus: Hawthorn

Duration: Two years

Intake: February, August

This program is designed for students who have a recognised degree in IT. The program provides students with a broad range of specialised studies and is developed for ICT specialists wishing to optimise their career opportunities. Students focus their studies through one of three specialisation streams:

- Information Systems Analysis and Management
- Networks
- Software Development

Program structure

This program requires the completion of 12 units of study including two core units and 10 electives. Units of study are categorised as either Level 2 (introductory) or Level 3 (advanced). The program involves two Level 3 core units, up to six elective Level 2 units, and up to six Level 3 elective units.

Units of study

Level 3 core units:

- Professional Issues in IT
- Professional Project, OR Internship Project, OR Configuring Business Information Systems Solutions, OR Industry Project (Analytical)

Optional Level 3 research units:

- Minor Thesis (50 credit points)
- Research Paper
- Research Report (25 credit points)
- Research Methods

Career opportunities

Depending on the area of specialisation, graduates may undertake a wide range of roles including enterprise systems application developer, network administrator, IT security engineer, internal corporate network manager, quality assurance analyst, project manager, multimedia developer, systems architect, business analyst, technical writer, systems analyst, application integration specialist, user interface analyst, data warehouse architect, data mining specialist, web developer, software developer or help desk manager.

Professional recognition

This program is accredited at professional level with the Australian Computer Society (ACS). The program has been externally audited by ACS, ensuring it meets the highest standard of the profession and industry.

Specialisation streams

Students may choose to focus their studies by selecting a specialisation in one of the following areas. It is also possible to combine units from different specialisations.

Information Systems Analysis and Management

This specialisation focuses on business analysis, information modelling, database design and information systems management.

Level 2 elective units

- Requirements, Analysis and Modelling
- Enterprise Systems
- Enterprise Technologies and Architectures
- Introduction to Business Information Systems
- Information Systems Project Management
- Business Information Systems Analysis
- Database Management Systems
- Database Implementation

Level 3 elective units

- Contemporary Issues in Business Analysis*
- Business Information Systems for a Rapidly Changing World
- Systems Project Management
- Knowledge Management
- IS Governance and Strategy*
- Information Systems Risk and Security
- Business Process Modelling
- Systems Acquisition and Implementation Management
- Business Intelligence
- Decision Analysis Systems
- Database Performance Issues
- Enterprise Systems Management
- Database Administration
- Enterprise Services and Security
- Delivering IT Business Value
- Information Systems Management
- Information Systems in Small and Medium Enterprises
- Enterprise Systems Implementation
- Configuring IIS Solutions
- Managing the IT Capability*
- Delivering IT Business Value*
- Managing IT-Enabled Transformation*
- Advanced Topics in ISM*

* Students must meet work experience requirements to enrol in these units

Networks

This specialisation focuses on the skills required to work as network system specialists. Units provide coverage of general networking principles with specific competencies including certification material from Cisco CCNA, CCNP and Microsoft MCITP.

Level 2 elective units

- Networks and Routing
- Network Administration

Level 3 elective units

- Internetworking Technologies
- Enterprise Network Server Administration
- Enterprise Service and Security
- Internet Security
- Internet Networking Infrastructure
- Information Systems Risk and Security
- Enterprise Network Server Administration

Software Development

This specialisation deals with emerging technologies such as Service-Oriented Architectures, Web Services and Enterprise Computing, including J2EE and .NET.

Level 2 elective units

- Web Development
  - Internet Technologies
- Software Development in Java
- Object-Oriented Programming
- Usability
- Enterprise Technologies and Architectures
- Web Programming
- Programming in Java

Level 3 elective units

- Advanced Java
- Agile Development Project
- Creating Data Driven Mobile Devices
- Enterprise .NET
- Enterprise Java
- Internet Security
- Advanced .NET Programming
- Database Programming
- Web Application Development
- Web Application Architectures
- Human Computer Interaction
- Software Development for Mobile Devices
- Software Testing and Reliability
- Software Process Improvement
- Software Quality Management
- Software Testing Processes and Automation
- Games Programming