Degrees and diplomas

Information and Communication Technologies

2014
‘I wasn’t sure whether to study business or IT, so this double degree was the perfect choice. The chance to take part in Swinburne’s Industry-Based Learning program and get paid work experience also appealed to me. I really like the lifestyle at Swinburne – it’s friendly and welcoming, and the staff are very helpful.’

Michelle
Bachelor of Business Information Systems/
Bachelor of Business
Find creative solutions to high-tech problems

Dynamic and constantly evolving, the field of information and communication technologies (ICT) provides exciting and challenging career opportunities. ICT is the backbone of many industries – health, transport, finance, media, manufacturing and automotive – so the skills you’ll learn will be highly valued by many employers.

Swinburne’s ICT courses are developed in close consultation with key industry representatives. The skills and knowledge gained in our ICT courses are transferable across countries and industries. This means that your studies could lead to work opportunities anywhere in the world.

**Bachelor of Information Technology**

The Bachelor of Information Technology is one of Australia’s most prestigious IT degrees. This innovative course is sponsored by 20 leading Australian organisations and all students receive an industry-funded scholarship totalling $40,000.

You’ll spend two 20-week periods working in a sponsor organisation – such as ANZ Bank, Fenwick Software, Fujitsu, Melbourne Water, seek.com.au or Sensis – gaining broad exposure to the use of IT in business.

To find out more see the Bachelor of Information Technology entry on page 8.

**Make connections with industry**

Your ICT degree can take you beyond the classroom to engage with industry and better prepare you for your career.

Swinburne’s Industry-Based Learning (IBL) program gives you practical experience during a six- or 12-month paid work placement. Your degree in ICT could lead to an IBL placement at Mercedes Benz as a website assistant or with ANZ Bank providing IT business solutions across international departments.

Capstone Projects engage students from across multiple disciplines and expose you to the kinds of collaborative environments you might experience in the workplace. As an ICT student you could help to develop a website advocating charity work in Cambodia, engineer an electronic chessboard for school children, undertake a research-based project analysing technological trends for the visually and hearing impaired, or assist a department at Swinburne with an internally developed project.

**Research excellence**

Our commitment to high-quality teaching and research was reflected in our rating for computer software of ‘above world standard’ in the Australian Government’s 2012 Excellence in Research for Australia report. Swinburne was the highest rated university in this field in Victoria.

**Your interests:**

- developing software programs, models and processes to solve problems
- software development for mobile or web applications
- creating innovative technology
- coming up with creative solutions to problems
- guiding business decisions through analytics.

**Possible careers:**

- applications developer
- business and systems analyst
- computer programmer
- database administrator
- games designer/developer/programmer
- information technology consultant
- mobile application developer
- multimedia developer/programmer
- network designer/administrator
- network security analyst
- software engineer
- telecommunication network engineer
- user-interface analyst
- web developer.
Studying ICT

Swinburne’s personalised approach to learning puts you at the heart of everything we do. Our ICT courses give you the skills you need – not just the theory – so you’ll have first-hand knowledge of what’s needed when you start work.

Studying at university

Degrees
An ICT degree usually takes three years to complete (full-time). You will be required to complete 24 units of study, most of which will be in your primary area of study and become your major. Most degrees also allow you to complete elective units, and you may have the option to complete two majors or a combination of a major and a minor/s.

Flexible course structure
Our flexible course structure allows you to add depth and breadth to your degree, by letting you choose from an extensive range of subjects from different disciplines.

Honours
You may be able to pursue your undergraduate studies at an advanced level by completing an additional specialised honours (fourth) year. An honours year allows you to deepen your understanding in your major field and develop your research skills.

Industry Engaged Learning
As a Swinburne undergraduate degree student, there are many opportunities to extend your learning beyond the classroom and become better prepared for your career. Industry Engaged Learning programs allow you to engage directly with industry. You can take part in one or many, including:

▸ Industry-Based Learning
▸ Capstone Projects
▸ internships.

Visit www.swinburne.edu.au/iel

Credit transfer
If you have been studying or completed a qualification at another Australian or international institution, you may be eligible to receive credit and enter a degree with advanced standing. To find out if you are eligible for credit transfer into the degree of your choice, phone 1300 275 794 to speak to an adviser.

Careers in the Curriculum
This free but compulsory unit for all students enrolled in an undergraduate degree will help you develop your career-planning skills. Create a personal study and career plan, and explore available job options.

Visit www.swinburne.edu.au/cic

University study skills
Swinburne offers a program in advanced study skills to help you make a successful start to university, whether you are transitioning from school to university, progressing from vocational training to university or returning to study after a break. The Course in Tertiary Transition Skills provides a supportive and practical small-group environment, where you can familiarise yourself with the typical skills needed to best manage the pressures and challenges of degree-level study.

Visit www.swinburne.edu.au/uniskills

Double degrees
Completing a double degree is a great way to broaden your study experience. An ICT double degree usually takes four years to complete (full-time) and is highly respected by employers. These degrees combine two areas of study, for example:

▸ Bachelor of Arts (Games and Interactivity)/Bachelor of Computer Science
▸ Bachelor of Business Information Systems/Bachelor of Business
▸ Bachelor of Engineering (Electronics and Computer Systems)/Bachelor of Computer Science
▸ Bachelor of Engineering (Robotics and Mechatronics)/Bachelor of Computer Science
▸ Bachelor of Engineering (Telecommunication and Network Engineering)/Bachelor of Business
▸ Bachelor of Engineering (Telecommunication and Network Engineering)/Bachelor of Computer Science.

Visit www.swinburne.edu.au/uniskills

To find information about all Swinburne courses, visit www.swinburne.edu.au/courses
Vocational training

Learn the skills that are in demand by employers and be taught by experienced teachers who are practitioners in their field. During your course you will use the equipment and technology used in industry, and gain insights and abilities that are expected in modern workplaces.

All of our courses have work-based elements, which can include work placements and projects, and workplace scenarios and simulations. This ensures you are prepared to get a job, make a significant contribution at work or further develop your career.

A range of ICT vocational courses is available, including:

- Advanced Diploma of Computer Systems Technology
- Diploma of Information Technology Networking
- Diploma of Information Technology Systems Administration
- Diploma of Software Development
- Diploma of Website Development
- Certificate IV in Computer Systems Technology
- Certificate IV in Information Technology Networking
- Certificate IV in Web-Based Technologies
- Certificate III in Information, Digital Media and Technology.

Diploma to degree

Whether you have completed an advanced diploma or diploma at Swinburne or another institution, a range of pathway options are in place to help you move between vocational training and a degree.

Course information

Business information systems

Bachelor of Business Information Systems

Campus: Hawthorn
Duration: Three years full-time or equivalent part-time
VCE Prerequisites: Units 3 and 4 – a study score of at least 30 in English (EAL) or at least 25 in any other English
Application: Direct (all intakes) or VTAC (Semester 1)
VTAC code: 3400234641 (CSP), 3400234643 (IFP)
2013 Round 1 Clearly-in ATAR: 66.50

Information systems (IS) address how people, information, computers, networks and processes come together to create cohesive business solutions. This course will prepare students for immediate entry into the management of business IS 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.

Major study areas
This course covers core IS studies, including:
- Business analysis
- Business process modelling
- Database design, implementation and management
- Enterprise systems
- Mobile business and connectivity
- Programming (.NET)
- Project management
- Risk and security
- Systems acquisition and implementation management.

Students can also select elective units and build skills in ICT, business, social science or design.

Career opportunities
Graduates may pursue a career in business analysis, business process analysis, business requirements analysis, project management, enterprise systems consultancy, business relationship management or business development.

Professional recognition
This degree is accredited at the professional level with the Australian Computer Society (ACS), ensuring it meets the highest standard of the profession and the industry.

Bachelor of Business Information Systems/Bachelor of Business

Campus: Hawthorn
Duration: Four years full-time or equivalent part-time
VCE Prerequisites: Units 3 and 4 – a study score of at least 30 in English (EAL) or at least 25 in any other English
Application: Direct (all intakes) or VTAC (Semester 1)
VTAC code: 3400234561 (CSP), 3400234563 (IFP)
2013 Round 1 Clearly-in ATAR: 60.90

This double degree combines specialist studies in business information systems (IS) with a business degree, leading to the choice of a generalist or specialist career using IS and ICT to analyse business problems and develop creative and innovative solutions.

Major study areas
This course covers core IS studies, including:
- Business analysis
- Business process modelling
- Database design, implementation and management
- Database management systems
- Enterprise systems
- Marketing and accounting
- Programming (.NET)
- Project management
- Risk and security
- Systems acquisition and implementation management.

Students also select one business major from:
- Accounting
- Commercial law
- Entrepreneurship and innovation
- Finance
- Human resource management
- International business
- Management
- Marketing.

Career opportunities
Graduates may find employment in organisations engaged in medium- to large-scale software development, in technical areas such as web programming, software design and engineering, user-interface engineering, software testing, usability, systems analysis and design, and project management.

Professional recognition
This degree is accredited at the professional level with the Australian Computer Society (ACS), ensuring it meets the highest standard of the profession and the industry.

Computer science

Bachelor of Computer Science

Campus: Hawthorn
Duration: Three years full-time or equivalent part-time
VCE Prerequisites: Units 3 and 4 – a study score of at least 30 in English (EAL) or at least 25 in any other English, and a study score of at least 20 in Mathematical Methods
Application: Direct (all intakes) or VTAC (Semester 1)
VTAC code: 3400234771 (CSP), 3400234773 (IFP)
2013 Round 1 Clearly-in ATAR: 54.30

This course focuses on advanced technologies including software development using C++ and Java, software engineering and software development for the Internet. It aims to develop extensive skills in software development, experience in working on team projects and strong communication skills.

Major study areas
- Artificial intelligence
- Business information systems
- Data communications and security
- Database analysis and design
- Internet technologies
- Languages in software development
- Professional issues in information technology
- Programming
- Software architectures, design, deployment and evolution
- Software development practices
- Software project practices and management

Career opportunities
Graduates may find employment in organisations engaged in medium- to large-scale software development, in technical areas such as web programming, software design and engineering, user-interface engineering, software testing, usability, systems analysis and design, and project management.

Professional recognition
This degree is accredited at the professional level with the Australian Computer Society (ACS), ensuring it meets the highest standard of the profession and the industry.
Computer systems technology

- Advanced Diploma of Computer Systems Technology
- Certificate IV in Computer Systems Technology

Campus: Hawthorn
Duration: Advanced diploma – One year full-time
Certificate – One year full-time

Prerequisites: Advanced diploma – Successful completion of Certificate IV in Computer Systems Technology or demonstrated experience in senior network support roles
Certificate – None
Application: Direct (all intakes) or VTAC (March start)
VTAC code: 3400227344 (FTDP)

These courses provide the skills and knowledge needed to coordinate and administer the commissioning, installation and maintenance of a range of networks, enterprise servers and systems. Students will gain a solid background in and theoretical knowledge of hardware and software components of modern computing systems.

Major study areas
- Analysis, diagnosis and fault-finding of computer systems and equipment
- Commissioning advanced computer systems and equipment, including local and wide-area networks
- Client needs analysis
- Planning, analysing and designing complex computer systems

Pathways
Successful completion of this course may allow students to progress to another qualification with advanced standing.

Career opportunities
Employment may be found in roles such as IT administrator or coordinator; IT operations administrator or coordinator; network services, network e-business, network support or network security administrator or coordinator; or network operations analyst. Alternatively, graduates may pursue further studies in information technology.

Games development

- Bachelor of Science (Games Development)

Campus: Hawthorn
Duration: Three years full-time or equivalent part-time
VCE Prerequisites: Units 1 and 2 – Mathematics (any); Units 3 and 4 – a study score of at least 30 in English (EAL) or at least 25 in any other English
Application: Direct (all intakes) or VTAC (Semester 1)
VTAC code: 3400234331 (CSP), 3400234333 (IFP)

2013 Round 1 Clearly-in ATAR: 70.45

This specialist ICT course focuses on the design and programming of computer games and other interactive software. Major areas of study include software development using an object-oriented approach and specialist areas in games design and development.

Students will also learn about the creative and design aspects of multimedia and internet technologies, particularly as applied to games development. The course also includes units in database, networking and project management, and it is good preparation for general software design and development careers, as well as specialist careers in the games industry.

Major study areas
- Artificial intelligence for games
- Databases
- Data communications and security
- Digital media, video and graphics
- Game design
- Games and graphics programming
- Interactive game structures
- Programming (Java and C++)
- Software engineering
- Web technologies

Career opportunities
Areas of initial employment may include game design and development, multimedia development and general software design and development, with opportunities to move into team leader and project management roles after gaining experience.

Professional recognition
This degree is accredited at the professional level with the Australian Computer Society (ACS), ensuring it meets the highest standard of the profession and the industry.

Games and interactivity

- Bachelor of Arts (Games and Interactivity)/Bachelor of Computer Science

Campus: Hawthorn
Duration: Four years full-time or equivalent part-time
VCE Prerequisites: Units 3 and 4 – a study score of at least 30 in English (EAL) or at least 25 in any other English; and a study score of at least 25 in Mathematical Methods or Specialist Mathematics
Application: Direct (all intakes) or VTAC (Semester 1)
VTAC code: 3400234721 (CSP), 3400234723 (IFP)

2013 Round 1 Clearly-in ATAR: New

This double degree provides students with a broad knowledge of game design combined with the computer science skills required to develop games and interactive applications. Using a range of teaching methods, this course combines theoretical and practical knowledge, and teaches students how to apply these to the development of 2D and 3D games.

Students completing this degree will possess a highly desirable combination of skills, enabling them to find work in a variety of positions in the games industry, as well as in the broader information and communications technology sector.

Major study areas
- 3D animation
- Digital media, video and graphics
- Games development
- Interactive game structures
- Internet and multimedia
- Java and C++ software development
- Software deployment and evolution
- User experience and design

Career opportunities
Graduates will be qualified to find employment in the digital media, information technology and games industries, particularly in the rapid prototyping of games, and in C++ and Java programming. The digital media skills gained should place graduates in high demand as the media industry progressively shifts its delivery to high-definition digital platforms.

Professional recognition
The Bachelor of Computer Science is accredited at the professional level with the Australian Computer Society (ACS) and has been externally vetted by ACS to ensure it meets the highest standards of the profession and industry.

Students will be eligible for student membership of the Games Developers’ Association of Australia (GDAA). Graduates working in the games industry will be eligible for membership of the International Games Developers’ Association (IGDA) and the GDAA.
Information and communication technology

Bachelor of Information and Communication Technology

Campus: Hawthorn
Duration: Three years full-time or equivalent part-time
VCE Prerequisites: Units 1 and 2 – Mathematics (any); Units 3 and 4 – a study score of at least 30 in English (EAL) or at least 25 in any other English
Application: Direct (all intakes) or VTAC (Semester 1)
VTAC code: 3400234171 (CSP), 3400234173 (IFP)
2013 Round 1 Clearly-in ATAR: 65.35

This course has a flexible structure that allows students to choose majors in the areas of software development, business information systems and computer networks. Minors and electives may be chosen from any discipline, including arts, business, psychology, science or additional advanced IT units. This course is ideal for students who are seeking an ICT course with flexible outcomes.

Major study areas
- Business analysis
- Business systems
- Games technology
- Network technology
- Software technology

Career opportunities
Graduates may find employment in programming, games development, internet systems development, software development, business analysis, database administration or computer networking.

Professional recognition
This degree is accredited at the professional level with the Australian Computer Society (ACS), ensuring it meets the highest standards of the profession and industry.

Certificate III in Information, Digital Media and Technology

Campus: Wantirna
Duration: Six to 12 months part-time
Prerequisites: There are no formal entry requirements. Applicants who have completed Certificate II in Information, Digital Media and Technology or who have demonstrated experience in information technology may be given preference.
Application: Direct
This course provides students with the skills and knowledge needed in a wide range of general information and communications technology (ICT) technical functions. The course is for those who use computer software packages in a business or at home, or for people seeking computing and IT skills who lack formal qualifications needed for entry to more advanced programs.

Major study areas
- Information technology support
- Microsoft Office
- Multimedia
- Network administration
- Web technologies

Pathways
Successful completion of this course may allow students to progress to another qualification with advanced standing.

Career opportunities
Employment may be found in roles such as office assistant, records assistant, junior office support, help-desk officer or assistant, ICT operations or user support, PC support or technical support. Alternatively, graduates may pursue further studies in information technology.

Information technology – scholarship program

Bachelor of Information Technology

Campus: Hawthorn
Duration: Three years full-time or equivalent part-time
VCE Prerequisites: Units 3 and 4 – a study score of at least 30 in English (EAL) or at least 25 in any other English, and a study score of at least 20 in Mathematics (any)
Application: Direct (all intakes) or VTAC (Semester 1); applicants must also submit a supplementary application form
VTAC code: 3400234311 (CSP)
2013 Round 1 Clearly-in ATAR: 80.30

This course is one of Australia’s most prestigious IT degrees and aims to provide future leaders for the ICT industry. It has been designed in partnership with leading Australian companies to equip students to move quickly into senior ICT positions after graduation. Students spend 40 weeks gaining direct experience in the ICT industry by working with Swinburne’s industry partners. They also receive a tax-free scholarship totalling approximately $40,000, to be paid in fortnightly instalments over the three-year course.

Students develop technical skills in databases and programming, and emphasis is placed on business analysis and problem-solving, business process management, project management, the management of information systems (IS) in organisations, the provision of IS services, social networking in organisations, and mobile business and connectivity. The course also includes business units aimed at developing managerial and leadership skills.

Major study areas
Areas of study areas include:
- business analysis and modelling
- business information systems
- business intelligence
- database management
- enterprise systems
- information systems management
- management, marketing and accounting
- mobile business and security
- organisational behaviour
- programming (.NET or C#)
- project management.

Career opportunities
Many units are also designed to develop skills in interpersonal communication, teamwork and management.

Professional recognition
This degree is accredited at the professional level with the Australian Computer Society (ACS), ensuring it meets the highest standards of the profession and industry.
Information technology

Diploma of Information Technology (UniLink) [new]

Campus: Hawthorn
Duration: Eight months
VCE Prerequisites: Units 3 and 4 – a study score of at least 30 in English (EAL) or at least 20 in any other English
Application: Direct (all intakes) or VTAC (February start)
VTAC code: 3400210021 (CSP), 3400210023 (IFP)
2013 Round 1 Clearly-in ATAR: New

This higher education diploma is an alternative pathway to the second year of a bachelor degree. The units are similar to those in the first year of a bachelor degree, but classes are smaller and students have more one-on-one time with teachers.

Major study areas
- Communication for information technology
- Database analysis and design
- Information communication technology environments
- Introduction to business information systems
- Introduction to programming .Net
- Requirements analysis and modelling
- Web development

Pathways
Successful completion of this course may allow students to progress to another qualification with advanced standing.

Career opportunities
After completing of their chosen degree, graduates may find employment in database administration, electronic publishing, information architecture, internet systems development, online entertainment, multimedia application design, project management, software development, network security, systems analysis or web design.

Network design and security

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

Campus: Hawthorn
Duration: Three years full-time or equivalent part-time
VCE Prerequisites: Units 1 and 2 – Mathematics (any); Units 3 and 4 – a study score of at least 30 in English (EAL) or at least 25 in any other English
Application: Direct (all intakes) or VTAC (Semester 1)
VTAC code: 3400234211 (CSP), 3400234213 (IFP)
2013 Round 1 Clearly-in ATAR: 65.50

This flexible course has been designed to meet growing industry demand for graduates who are able to secure information and communication systems and are competent in computer network technologies and security. Students will study programming, internet technologies, systems analysis and design, database technologies and software engineering, as well as advanced topics in computer networks and security.

On completion, students will be able to evaluate and manage computing networks and business information systems, and have the capacity to develop secure software applications, including web, database and information management projects.

The course also has a strong industry focus that prepares students for certification as a Cisco Certified Network Associate (CCNA) and for Microsoft certifications.

Major study areas
- Database analysis and design
- Data communications and security
- Network administration
- Network security and resilience
- Programming (C++ and Java)
- Project management
- Risk and security
- Web technologies

Career opportunities
Employment may be found as an information security analyst, network security professional, information security professional, IT systems administrator, network administrator, systems administrator, programmer, web developer or database administrator.

Professional recognition
This degree is accredited at the professional level with the Australian Computer Society (ACS), ensuring it meets the highest standards of the profession and the industry.

Diploma of Information Technology Networking

Campus: Hawthorn
Duration: One year full-time or equivalent part-time
Prerequisites: Successful completion of Certificate IV in Information Technology Networking or demonstrated experience in network support
Application: Direct (all intakes) or VTAC (March start)
VTAC code: 3400277074 (FTDP)

In this course students will gain the skills and knowledge needed to install and manage simple networks either as an independent ICT specialist or as part of a team. Students learn how to install and administer Linux, Microsoft operating systems and network security. Students may also have the opportunity to study the IT Essentials and Cisco CCNA programs.

Major study areas
- Computer hardware
- Network administration, design, management, systems and security
- Networks and data communications
- Operating systems
- PC support
- Risk analysis and management
- Systems security and controls
- Systems testing

Pathways
Successful completion of this course may allow students to progress to another qualification with advanced standing.

Career opportunities
Graduates may find employment in roles such as customer support, database support, help-desk specialist, network support technician, PC support technician, or user support technician. Alternatively, graduates may undertake further study in computing, network design and security, telecommunications and related areas.
Network design and security (continued)

Certificate IV in Information Technology Networking

Campus: Hawthorn
Duration: One year full-time
Prerequisites: Successful completion of Certificate IV in Information Technology Networking or experience in systems administration
Application: Direct (all intakes) or VTAC (March start)
VTAC code: 3400277114 (FTDP)

This course provides the skills and knowledge needed to administer a variety of networked computer systems in a business environment. Emphasis is placed on practical skills using a hands-on approach.

Major study areas
- Linux, Microsoft and Novell network operating systems
- Network installation and administration
- Network security and implementation
- Network testing
- Project management and client support

Pathways
Successful completion of this course may allow students to progress to another qualification with advanced standing.

Career opportunities
Graduates will be prepared for employment in network administration, systems management, and help-desk and IT support. Alternatively, graduates may continue on to further studies at university level in relevant areas of computing.

Robotics and mechatronics

Bachelor of Engineering (Robotics and Mechatronics)/Bachelor of Computer Science

Campus: Hawthorn
Duration: Five years full-time or equivalent part-time
VCE Prerequisites: Units 3 and 4 — a study score of at least 30 in English (EAL) or at least 25 in any other English, and a study score of at least 2D in Mathematical Methods
Application: Direct (all intakes) or VTAC (Semester 1)
VTAC code: 3400234991 (CSP), 3400234993 (IFP)

2013 Round 1 Clearly-in ATAR: New

This double degree provides advanced computing techniques in the design and operation of robotic and mechatronic systems. Students also study mechanical engineering, electrical engineering, and electronic and software engineering. They learn about the design, development and control of diverse systems used in a range of industries, including manufacturing, medicine and the service industries.

Practical workshops and projects will be introduced throughout the degree to prepare students for employment after graduation. In their final year, students will have the opportunity to apply their learning in a professionally focused project, as well as undertake postgraduate-level elective units to complete their degree.

Major study areas
In the first year students will complete a number of general units such as engineering maths, and energy and motion.

Students also complete units in:
- computer-aided engineering (CAE)
- computer science and software engineering
- data communications and networks
- electronics
- intelligent systems
- machine dynamics and design
- mechatronics systems design and development
- programming
- project management
- robotics
- structure mechanics.

Career opportunities
Graduates may pursue a career in robotics, aerospace, chemical, defence, automotive and manufacturing where complex software plays a major role; and in businesses that require extensive computer support, such as banking and commerce. This may include roles as a design engineer, software engineer, project planner, product designer and project manager.

Professional recognition
Graduates will be eligible to apply for graduate membership of Engineers Australia (EA). The Bachelor of Computer Science has been accredited at professional level by the Australian Computer Society (ACS).
Software development

Bachelor of Applied Information and Communication Technology

Campus: Hawthorn, Wantirna
Duration: Three years full-time or equivalent part-time
VCE Prerequisites: Units 3 and 4 – a study score of at least 30 in English (EAL) or at least 25 in any other English
Application: Direct (all intakes) or VTAC (Semester 1)
VTAC code: 340034811 (CSP), 340034813 (IFP)

2013 Round 1 Clearly-in ATAR: n/a

The focus of this course is on software and web development. The course also includes a range of ICT studies such as databases, networking, computer systems and project management. It has a practical approach with an emphasis on problem-solving and project work.

The first year is taught at either the Hawthorn or Wantirna campus; the second and third years are taught at the Hawthorn campus. The first year provides a supportive learning environment with small classes and additional contact hours for each class. Students may apply to be awarded a Diploma of Information Technology on successful completion of the first-year units. The second and final years of the course include elective units that allow students to broaden their focus or specialise in a specific ICT discipline.

Major study areas
- Database analysis and design
- Data communications and security
- Mobile application development
- Programming (Java)
- Project management
- Software engineering
- Usability and user-centred design
- Web development

Career opportunities
Employment may be found in roles such as applications developer, quality assurance analyst, project manager, multimedia developer, mobile application developer, systems architect, business requirements analyst, application integration specialist and user-interface analyst.

Diploma of Software Development

Campus: Hawthorn
Duration: One year full-time
Prerequisites: Successful completion of Certificate IV in Web-Based Technologies or demonstrated experience in programming
Application: Direct (all intakes) or VTAC (March start)
VTAC code: 3400277186 (FTDP)

This course provides the skills and knowledge needed for students to construct software and websites using a range of software applications.

Major study areas
- Analysing design
- PHP
- Programming (Java and C++)
- Project management
- Software development testing

Pathways
Successful completion of this course may allow students to progress to another qualification with advanced standing.

Career opportunities
Employment may be found in the area of software design and development in roles such as analyst, programmer support, assistant programming developer, assistant software applications programmer, assistant software developer, database support programmer or web-support programmer.

Software engineering

Bachelor of Engineering (Software Engineering)

Campus: Hawthorn
Duration: Four years full-time or equivalent part-time
VCE Prerequisites: Units 3 and 4 – a study score of at least 30 in English (EAL) or at least 25 in any other English, and a study score of at least 20 in Mathematical Methods or Specialist Mathematics
Application: Direct (all intakes) or VTAC (Semester 1)
VTAC code: 3400234861 (CSP), 3400234863 (IFP)

2013 Round 1 Clearly-in ATAR: n/a

Software engineers design, implement, test, maintain and manage projects for the engineering of complex software systems. This course covers advanced software engineering with an emphasis on teamwork, problem-solving and practical software engineering skills, including quality assurance, project management and industry-standard development techniques and tools. The course also includes units in the engineering of embedded software systems, systems engineering and mobile applications.

Students will gain 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 covers both the fundamentals and more advanced topics in software and systems engineering, including design, quality assurance, implementation and deployment.

The course also allows students to gain specialised skills in a variety of areas, including telecommunications, robotics and mechatronics, pervasive computing and mobile systems development.

Major study areas
- Data communications and security
- Electronics
- Engineering management
- Enterprise programming
- Mathematics
- Programming (C++ and Java)
- Project management
- Software architecture
- Software engineering
- Usability and user-centred design

Career opportunities
Graduates may find employment in a variety of roles, including software engineer, quality assurance engineer, systems engineer, software architect, software design and development, and embedded systems and mobile application engineering.

Employment opportunities exist in organisations engaged in medium- to large-scale software development projects in many areas such as defence and aerospace, manufacturing, control systems, banking and finance.
‘I’ve always had a passion for IT, and Swinburne’s reputation as the best university for students aspiring to work in this field made my choice easy. I’ve really enjoyed learning the process of software design, and the way project management and project development work in collaboration. The atmosphere of studying at Swinburne makes you want to give it your best shot.’

Michael
Bachelor of Applied Information and Communication Technology
Telecommunication and network engineering

Bachelor of Engineering (Telecommunication and Network Engineering)

**Campus:** Hawthorn  
**Duration:** Four years full-time or equivalent part-time  
**VCE Prerequisites:** Units 3 and 4 – a study score of at least 30 in English (EAL) or at least 25 in any other English, and a study score of at least 20 in Mathematical Methods or Specialist Mathematics  
**Application:** Direct (all intakes) or VTAC (Semester 1)  
**VTAC code:** 3400234901 (CSP), 3400234903 (IFP)  
**2013 Round 1 Clearly-in ATAR:** 73.35

Telecommunication and network engineers design, implement and facilitate the communication infrastructure of businesses, ensuring information flow is not interrupted or slowed. Telecommunication engineers are capable of developing sophisticated systems such as cellular mobile communication networks, broadband multimedia computer networks, and radio and television broadcasting systems.

This degree provides 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. Elective units prepare students to obtain both Cisco Systems and Microsoft Industry certifications.

Detailed theoretical learning is coupled with extensive practical experience in various aspects of networking and signal analysis used in telecommunications and networking.

**Major study areas**
- Communications theory and principles
- Electronics
- Engineering management
- Enterprise services and security
- Mathematics
- Network design and security
- Network modelling and analysis
- Programming (C)
- Wireless communications

**Career opportunities**
Graduates may find employment in the ICT industry in a range of areas including the design, installation and commissioning of telecommunications equipment; management of next-generation telecommunications systems; management and optimisation of telecommunications performance; network design and security; network analysis; telecommunications and network product management; marketing; and senior sales management.

**Professional recognition**
Graduates will be eligible to apply for graduate membership of Engineers Australia (EA).

Bachelor of Engineering (Telecommunication and Network Engineering)/Bachelor of Business

**Campus:** Hawthorn  
**Duration:** Five years full-time or equivalent part-time  
**VCE Prerequisites:** Units 3 and 4 – a study score of at least 30 in English (EAL) or at least 25 in any other English, and a study score of at least 20 in Mathematical Methods  
**Application:** Direct (all intakes) or VTAC (Semester 1)  
**VTAC code:** 3400234901 (CSP), 3400234903 (IFP)  
**2013 Round 1 Clearly-in ATAR:** New

This double degree introduces students to engineering principles in electronic and telecommunications engineering, as well as business fundamentals. It emphasises an in-depth understanding of the technology of the internet and the international telecommunications industry, covering the internet, local and global digital networking, and mobile communication systems for broadband-interactive information highways. Elective units prepare students to obtain both Cisco Systems and Microsoft Industry certifications.

Detailed theoretical learning is coupled with extensive practical experience in various aspects of networking and signal analysis used in telecommunications and networking.

**Major study areas**
Areas of study include:
- communications theory and principles
- electronics
- engineering management
- enterprise services and security
- mathematics
- network design and security
- network modelling and analysis
- programming (C)
- wireless communications

Students also select one business major from:
- finance
- management.

**Career opportunities**
Graduates may find rewarding careers in the converging business, telecommunications, multimedia, computing and internet information technology industries. They may find roles as an internet applications engineer or manager, telecommunications link designer, embedded computing systems designer, embedded software systems designer, network switching and protocol designer, analyst/designer/manager of internal corporate multimedia networks, or network administrator/webmaster.

**Professional recognition**
Graduates will be eligible to apply for graduate membership of Engineers Australia (EA). Depending on the business major selected, graduates may be eligible for membership to the Financial Services Institute of Australasia (FINSA), the Stockbrokers Association of Australia (SAA), the Australian Institute of Management (AIM) or Chartered Secretaries Australia (CSA).
Telecommunication and network engineering (continued)

Bachelor of Engineering (Telecommunication and Network Engineering)/Bachelor of Computer Science

Campus: Hawthorn
Duration: Five years full-time or equivalent part-time
VCE Prerequisites: Units 3 and 4 – a study score of at least 30 in English (EAL) or at least 25 in any other English, and a study score of at least 20 in Mathematical Methods or Specialist Mathematics
Application: Direct (all intakes) or VTAC (Semester 1)
VTAC code: 3400234911 (CSP), 3400234913 (IFP)

2013 Round 1 Clearly-in ATAR: New

Telecommunication and network engineers design, implement and facilitate the communication infrastructure of today’s businesses. This double degree offers a comprehensive combination of studies in computer hardware, telecommunications and software engineering to prepare students for roles as technical experts in their field.

Students gain a professional understanding of the science and engineering principles underlying telecommunication and network engineering, and competency in industry-relevant engineering methods and techniques. The course focuses on applications involving multimedia and on web-based systems, with an emphasis on the design of effective human–computer interfaces.

Detailed theoretical learning is coupled with extensive practical experience in various aspects of networking and signal analysis used in telecommunications and networking. Elective units prepare students to obtain both Cisco Systems and Microsoft Industry certificates.

Major study areas
Areas of study include:
- communications theory and principles
- electronic systems
- engineering management
- enterprise services and security
- network design and security
- network modelling and analysis
- programming (C)
- software engineering
- wireless communications.

Students also study computer science units such as software development, databases, data communications and software engineering.

Career opportunities
Graduates may find employment in areas such as the design, installation and commissioning of telecommunications equipment; management of next-generation telecommunications systems; management and optimisation of telecommunications performance; network design and security; network analysis; telecommunications and network product management; software engineering; and development of complex software systems.

Professional recognition
Graduates will be eligible to apply for graduate membership of Engineers Australia (EA). This double degree has been accredited at professional level by the Australian Computer Society (ACS).

Website development

Diploma of Website Development

Campus: Hawthorn
Duration: One year full-time
Prerequisites: Successful completion of Certificate IV in Web-Based Technologies or experience and skills equivalent to this qualification
Application: Direct (all intakes) or VTAC (March start)
VTAC code: 3400277254 (FTDP)

This course is suitable for those who require knowledge and skills in producing and maintaining websites. In this course students will learn how to construct websites and content using internet servers and a range of software applications and digital devices.

Major study areas
- Analysis and design
- PHP
- Project management
- Web testing

Pathways
Successful completion of this course may allow students to progress to another qualification with advanced standing.

Career opportunities
Employment may be found in the field of website development in roles such as web programmer and web designer.
Certificate IV in Web-Based Technologies

Campus: Hawthorn, Wantirna
Duration: One year full-time or equivalent part-time
Prerequisites: None
Application: Direct

This qualification provides students with the skills and knowledge needed to construct websites and content using a personal computer and a range of software applications and digital devices.

Major study areas
- CCS
- HTML
- Javascript
- Mobile programming
- PHP
- Project management and analysis
- SQL
- Web tools

Pathways
Successful completion of this course may allow students to progress to another qualification with advanced standing.

Career opportunities
Employment may be found in the field of website development. Alternatively, graduates may pursue further studies in web-based technologies.

Scholarships

Vice-Chancellor’s Scholarship – Information Technology/Science

Campus: Hawthorn
See relevant course entries for duration and prerequisite information.
Application: Direct or VTAC (Semester 1 only)
VTAC code: 3400234621 (CSP)
Minimum ATAR: 95.00

In this program, students may select a single or double degree in the information technology and science areas. Recipients receive a waiver from student contribution amount payments for the duration of their course (subject to academic performance and other scholarship conditions).
Visit www.swinburne.edu.au/scholarships for a list of all scholarships available.
Also see Bachelor of Information Technology on page 8.
KEY DATES

Throughout 2013
One-on-one course adviser appointments

4 August 2013
Swinburne Open Day
Hawthorn campus
swinburne.edu.au/openday

CAMPUSSES

Hawthorn campus
John Street, Hawthorn

Melbourne CBD campus
196 Flinders Street, Melbourne

Croydon campus
12-50 Norton Road, Croydon

Wantirna campus
369 Stud Road, Wantirna

Sarawak campus
Kuching, Sarawak, Malaysia

FURTHER INFORMATION

1300 275 794
study@swinburne.edu.au
swinburne.edu.au/future

swinburne.edu.au/facebook
swinburne.edu.au/twitter
swinburne.edu.au/youtube