Degrees and diplomas

Information and Communication Technologies

2015

swinburne.edu.au
'Swinburne was the only university that offered the course I wanted. The final-year project allowed me to learn a lot more about network programming and to increase my scripting skills. Through the contacts I had made during my Industry-Based Learning placement at Cisco Systems I was able to interview experienced people in industry, which meant I could add an extra dimension to the project.'

Sarah
Bachelor of Engineering
(Telecommunication and Network Engineering) (Honours)
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.

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, Fenwick Software, Fujitsu, Melbourne Water, SEEK 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 10.

Showcase your cyber-security skills

Each year Swinburne ICT students compete in Cyber Security Challenge Australia (CySCA), a government-sponsored cyber-hacking competition. In 2013 three teams of Swinburne students competed at CySCA, which tests skills in preventing and detecting cyber attacks. One of the Swinburne teams was the best-performing Victorian team, and Swinburne was one of only four universities to be awarded multiple medals for finishing tasks before anyone else.

The competitors had to identify vulnerabilities in the network of a fictitious Australian business and recommend actions to enhance its network security. The teams were assessed by federal government and Telstra cyber-security experts.

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 providing IT business solutions across international departments.

Final-year projects, called Capstone Projects, engage students from across multiple disciplines and allow you to put your learning into practice. 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 vision and hearing impaired, or assist a department at Swinburne with an internally developed project.
Studying ICT

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.

Finding the right course

An ICT course could be right for you if your interests include:
- 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.

These courses can lead to careers such as:
- applications developer
- business 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
- systems analyst
- telecommunication network engineer
- user-interface analyst
- web developer.

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.

Double degrees

Completing a double degree is a great way to broaden your study experience. An ICT double degree usually takes five 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) (Honours)/Bachelor of Computer Science
- Bachelor of Engineering (Robotics and Mechatronics) (Honours)/Bachelor of Computer Science
- Bachelor of Engineering (Telecommunication and Network Engineering) (Honours)/Bachelor of Business
- Bachelor of Engineering (Telecommunication and Network Engineering) (Honours)/Bachelor of Computer Science.

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.

Note: An honours year is incorporated in Bachelor of Engineering degrees.

Associate degrees

Associate degrees are two-year qualifications based on hands-on skills and practical outcomes. They offer smaller class sizes and more support from teaching staff. On successful completion of the Associate Degree of Applied Information and Communication Technology, you can progress to achieve a Bachelor of Applied Information and Communication Technology with one year’s extra study.

Visit www.swinburne.edu.au/pathways/associatedegrees

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.

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


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.


Learning and Academic Skills Centre

Swinburne’s learning and academic skills advisers can help you to study smarter and achieve better results. Develop your skills in:

- Essay, report and thesis writing
- Maths, statistics, physics and chemistry
- Giving presentations
- Researching and referencing
- Making assignments look more professional
- Preparing for exams.

You can attend free workshops and seminars, and make individual or group appointments with an adviser. A range of online resources is also available.

Credit transfer

If you have been studying or have 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.

Vocational education

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 Digital Media Technologies
- Diploma of Information Technology Networking
- Certificate IV in Computer Systems Technology
- Certificate IV in Digital Media Technologies
- Certificate IV in Information Technology Networking.

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: VTAC (Semester 1) or direct (all intakes)
VTAC code: 3400234561 (CSP), 3400234563 (IFP)
2014 Round 1 Clearly-in ATAR: 71.10

Information systems (IS) address how people, information, computers, networks and processes come together to create cohesive business solutions. This course aims to prepare students for immediate entry into the management of business IS in organisations. Students will learn some technical skills, but more emphasis is 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
Areas of study include:
- 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 professionally accredited by the Australian Computer Society.

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: VTAC (Semester 1) or direct (all intakes)
VTAC code: 3400234561 (CSP), 3400234563 (IFP)
2014 Round 1 Clearly-in ATAR: 71.70

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
Areas of study in IS include:
- 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 also select one business major from:
- accounting
- advertising
- commercial law
- entrepreneurship and innovation
- finance
- human resource management
- international business
- management
- marketing
- public relations
- tourism management.

Career opportunities
Graduates of this degree are highly sought and may gain employment in business analysis, business requirements analysis, project management solution design, business development and IS/IT consultancy.

Professional recognition
Graduates may be eligible for membership of the Association of Chartered Certified Accountants, Australian Human Resources Institute, Australian Institute of Management, Australian Marketing Institute, Chartered Institute of Management Accountants, CPA Australia, Financial Services Institute of Australasia, Governance Institute of Australia, Institute of Chartered Accountants, Institute of Public Accountants, Public Relations Institute of Australia and Stockbrokers Association of Australia.

The accounting major is professionally accredited by CPA Australia. The business information systems major is professionally accredited by the Australian Computer Society. The human resource management major is professionally accredited by the Australian Human Resources Institute. The public relations major is professionally accredited by the Public Relations Institute of Australia.

Computer science

Bachelor of Computer Science

Campus: Hawthorn
Duration: Three years full-time or equivalent part-time
VCE prerequisites: Units 1 and 2 – Mathematics (any) or Units 3 and 4 – 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: VTAC (Semester 1) or direct (all intakes)
VTAC code: 3400234771 (CSP), 3400234773 (IFP)
2014 Round 1 Clearly-in ATAR: 70.35

In this course students will learn about software development, as well as receiving a sound understanding of the traditional aspects of computer science. There is a focus on contemporary approaches to application development involving mobile devices and web-based systems, with an emphasis on the design and implementation of effective human–computer interfaces.

Students have the option to study advanced units in areas such as artificial intelligence, games programming, computer networks, database management, enterprise systems and advanced programming. The course also aims to develop skills in a range of programming languages, including C++, C#, Objective C and Java.

The course is oriented towards applications in business contexts such as defence, aerospace and medicine, where complex software plays a major role, as well as other industries that require extensive technological support such as banking and manufacturing.

Major study areas
- Computer and logic essentials
- Computer systems
- Creating secure and scalable software
- Data management
- Data structures and patterns
- Interface design and development
- Professional issues in information technology
- Programming
- Software development tools and practices
- Software engineering
- Software project practices and management
- User-centred design

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 professionally accredited by the Australian Computer Society.

VTAC FEE-TYPE CODES

CSP: Commonwealth supported place
FTP: Fee type determined by provider
IFP: International fee place

Visit www.vtac.edu.au to find your fee-type eligibility.
## Computer systems technology

### Advanced Diploma of Computer Systems Technology

- **Campus:** Hawthorn
- **Duration:** One year full-time
- **Prerequisites:** Successful completion of Certificate IV in Computer Systems Technology or demonstrated experience in senior network support roles
- **Application:** VTAC (March start) or direct (all intakes)

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.

### Certificate IV in Computer Systems Technology

- **Campus:** Hawthorn
- **Duration:** One year full-time

This course has been developed with industry assistance to provide a broad range of skills required for entry into the information technology and multimedia industries. Emphasis is placed on practical skills using a hands-on approach. Students learn about digital photography, visual design, web design, web programming, database integration and multimedia project management.

## Digital media technology

### Diploma of Digital Media Technologies

- **Campus:** Hawthorn
- **Duration:** One year full-time
- **Prerequisites:** Successful completion of Certificate IV in Digital Media Technologies or equivalent, or relevant experience
- **Application:** VTAC (March start) or direct (all intakes)

This course offers students the skills and knowledge needed to become a web or multimedia developer.

### Certificate IV in Digital Media Technologies specialising in Multimedia

- **Campus:** Hawthorn, Wantirna
- **Duration:** One year full-time
- **Prerequisites:** None

This course offers students the skills and knowledge needed to become a web or multimedia developer.

## Career opportunities

Graduates are prepared for work in web design, interactive digital media, web programming, video production and post-production, and 3D modelling and animation. They will also be prepared for further study in digital media.
Digital media technology (continued)

Certificate IV in Digital Media Technologies

Campus: Hawthorn, Wantirna
Duration: One year full-time
Prerequisites: None
Application: VTAC (March start) or direct (all intakes)
VTAC code: Hawthorn: 3400277404 (FTDP)
Wantirna: 3401077404 (FTDP)

This course offers students the skills and knowledge to create software and digital device technology.

Major study areas
- CCS
- Digital imaging
- HTML
- JavaScript
- Mobile programming
- PHP
- Project management and analysis
- SQL
- Web design
- Web tools

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

Career opportunities
Graduates are prepared for work in web design, web programming and software development. They will also be prepared for further study in information technology.

Electronics and computer systems

Bachelor of Engineering (Electronics and Computer Systems) (Honours)/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 (CAS)
Application: VTAC (Semester 1) or direct (all intakes)
VTAC code: 3400234821 (CSP), 3400234823 (IFP)

2014 Round 1 Clearly-in ATAR: n/a

This course lays a foundation for creative and innovative design in the pursuit of solutions to engineering problems. Students develop design expertise in digital and analogue electronics, embedded systems, computer architectures, digital signal processing and software engineering. Students select one major from programming, artificial intelligence and database systems.

The course promotes logical and lateral thinking through practical workshops and industry-based projects. Students benefit from group laboratory work that teaches them how to bring together their diverse range of skills. They learn comprehensive engineering theory and have the opportunity to work on hands-on projects.

Students apply their learning in a professionally focused, multidisciplinary project during their final year of study. They also undertake at least 12 weeks of relevant work experience.

Major study areas
First-year studies include general units in engineering mathematics and energy and motion.
Students also complete units in:
- analogue and digital electronics design
- digital signal processing and implementation
- hardware description languages
- principles of embedded systems
- project and engineering management
- software engineering
- system on chip
- telecommunications, automation and control.
Students also select computer science elective units in:
- data visualisation
- digital graphics
- introduction to supercomputing.

Career opportunities
Graduates may find careers as an engineer, product manager or designer in the chemical, defence, electronic appliances, robotics or telecommunications industries, or in industrial research. They may also find roles in any field where the ability to cope with complexity in electronic design, computer systems and software development is an asset.

Professional recognition
Graduates may be eligible for membership of Engineers Australia.
The computer science degree is professionally accredited by the Australian Computer Society.
The electronics and computer systems degree is professionally accredited by Engineers Australia.
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 (CAS) or Specialist Mathematics
Application: VTAC (Semester 1) or direct (all intakes)
VTAC code: 3400234721 (CSP), 3400234723 (IFP)
2014 Round 1 Clearly-in ATAR: 75.15

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
Students may be eligible for membership of the Games Developers’ Association of Australia.

Graduates working in the games industry may be eligible for membership of the Games Developers’ Association of Australia and International Games Developers’ Association.

The computer science degree is professionally accredited by the Australian Computer Society.

Games development

Bachelor of Computer 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: VTAC (Semester 1) or direct (all intakes)
VTAC code: 3400234331 (CSP), 3400234333 (IFP)
2014 Round 1 Clearly-in ATAR: 70.15

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 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 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
- Digital media, video and graphics
- Game design
- Games and graphics programming
- Programming (Java, C++, C#)
- Secure and scalable applications
- 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 professionally accredited by the Australian Computer Society.

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: VTAC (Semester 1) or direct (all intakes)
VTAC code: 3400234171 (CSP), 3400234173 (IFP)
2014 Round 1 Clearly-in ATAR: 70.90

This course provides students with the knowledge and skills to be an information and communication technology professional, with particular skills in a chosen area. The course focuses on computer and network configurations, web and application programming, and database design and maintenance. Students also have the opportunity to specialise in a particular aspect of ICT-related work. This course is ideal for students who are seeking an ICT course with flexible outcomes.

Major study areas
- Business analysis
- Business systems
- Network technology
- Software technology
- Systems management

Career opportunities
Graduates will be prepared for roles in a range of areas including software-related functions, ICT infrastructure maintenance, database administration, business analysis and systems integration. Depending on the specialisation chosen, graduates may also find roles in areas such as mobile applications, games design, software development, business intelligence or project management.

Professional recognition
This degree is professionally accredited by the Australian Computer Society.
Information technology – scholarship program

Bachelor of Information Technology
Campus: Hawthorn
Duration: Three years full-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: VTAC (Semester 1) or direct (all intakes); applicants must also submit a supplementary application form
VTAC code: 3400234311 (CSP)
2014 Round 1 Clearly-in ATAR: Range of criteria

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 include:
- business analysis and modelling
- business information systems
- business intelligence
- database management
- enterprise systems
- information systems management
- management and accounting
- mobile business and security
- organisational behaviour
- programming (C, Pascal, VB, Java)
- project management.

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

Career opportunities
This degree has a high employment rate. Graduates may find employment in a range of ICT positions, including systems analyst, software developer, ICT security analyst, business analyst, ICT policy and governance, IT/IS consultant or project manager.

Professional recognition
This degree is professionally accredited by the Australian Computer Society.

Information technology

Diploma of Information Technology (UniLink)
Campus: Hawthorn
Duration: Eight months full-time or equivalent part-time
VCE prerequisites: Units 3 and 4 – a study score of at least 25 in English (EAL) or at least 20 in any other English
Application: VTAC (February start) or direct (all intakes)
VTAC code: 3400210021 (CSP), 3400210023 (IFP)
2014 Round 1 Clearly-in ATAR: 50.70

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
On successful completion of this course, students may progress to the second year of a Bachelor of Business Information Systems or Bachelor of Information and Communication Technology.


Career opportunities
After completion 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: VTAC (Semester 1) or direct (all intakes)
VTAC code: 3400234211 (CSP), 3400234213 (IFP)
2014 Round 1 Clearly-in ATAR: 76.10

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 and for Microsoft certifications.

Major study areas
- Data management
- eForensics
- IT security
- Network administration
- Network security and resilience
- Programming (C#, C++, Java)
- Project management
- Risk and security
- Routing and switching
- Web technologies
- Windows operating system management

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 professionally accredited by the Australian Computer Society.
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: VTAC (March start) or direct (all intakes)
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 and Microsoft operating systems, and network security. Students may also have the opportunity to undertake the Cisco Certified Network Associate program.

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 one of the following degrees with advanced standing:
- Bachelor of Business Information Systems
- Bachelor of Computer Science (Games Development)
- Bachelor of Information and Communication Technology
- Bachelor of Information and Communication Technology (Network Design and Security).


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.

Certificate IV in Information Technology Networking

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

This course provides training in networking, Linux administration, Windows servers, security and client support. Students can also enrol in Cisco qualifications (IT Essentials and Cisco 1 & II). Students will gain the skills and knowledge needed to install and manage small-scale networks, either as an independent network support technician or as part of a team.

Major study areas
- Client business requirements
- Copyright, ethics and privacy in IT environments
- Internet protocol networks
- Network and data integrity
- Occupational health and safety
- Servers
- Small enterprise branch networks
- Virtual machines for sustainable ICT

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

Career opportunities
Graduates may find employment in the areas of network support and network technician. Alternatively, graduates may undertake further study in computing, network design and security, telecommunications and related areas.

Robotics and mechatronics

Bachelor of Engineering (Robotics and Mechatronics) (Honours)/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 (CAS)
Application: VTAC (Semester 1) or direct (all intakes)
VTAC code: 3400234991 (CSF), 3400234993 (IFP)
2014 Round 1 Clearly-in ATAR: 80.25

In this course students learn how to apply 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.

Students participate in practical workshops and industry projects throughout the course.

Students apply their learning in a professionally focused, multidisciplinary project during their final year of study. They also undertake at least 12 weeks of relevant work experience.

Major study areas
First-year studies include general units in engineering mathematics and energy and motion.

Students also complete units in:
- computer-aided engineering
- 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
- structural mechanics.

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

Professional recognition
Graduates may be eligible for membership of Engineers Australia.

The computer science degree is professionally accredited by the Australian Computer Society. The robotics and mechatronics degree is professionally accredited by Engineers Australia.
Software development

Bachelor of Applied Information and Communication 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
Application: VTAC (Semester 1) or direct (all intakes)
VTAC code: 3400234811 (CSP), 3400234813 (IFP)
2014 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 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
- Database and computer systems
- IT security
- Mobile application development
- Networking
- Operating systems
- Programming (C#, C++, 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.

Professional recognition
This degree is professionally accredited by the Australian Computer Society.

Associate Degree of Applied Information and Communication Technology

Campus: Hawthorn
Duration: Two 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 20 in any other English
Application: VTAC (Semester 1) or direct (all intakes)
VTAC code: 3400235501 (CSP)
2014 Round 1 Clearly-in ATAR: n/a

This course gives students the opportunity to develop skills and knowledge in user-centred design for software and web applications, software and web programming, and contemporary software development processes and technologies.

Major study areas
- Business systems solutions
- Computer systems and networks
- Emerging web technologies
- Local area networking
- Programming
- Software development
- Website development

Career opportunities
Graduates may find employment in roles such as web developer, multimedia developer, mobile application developer, systems architect, business requirements analyst, quality assurance analyst, user-interface analyst, technical writer and application integration specialist.

This degree is a pathway to the third year of the Bachelor of Applied Information and Communication Technology.

Software engineering

Bachelor of Engineering (Software Engineering) (Honours)

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 (CAS) or Specialist Mathematics
Application: VTAC (Semester 1) or direct (all intakes)
VTAC code: 3400234861 (CSP), 3400234863 (IFP)
2014 Round 1 Clearly-in ATAR: 80.85

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
- Electronics
- Engineering management
- Enterprise programming
- Mathematics
- Programming (C++, Java)
- Project management
- Software architecture
- Software system design
- 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 designer and developer, and embedded systems and mobile application engineer. Employment opportunities exist in organisations engaged in medium- to large-scale software development projects in areas such as defence and aerospace, manufacturing, control systems, banking and finance.

Professional recognition
Graduates may be eligible for membership of Engineers Australia.

This degree is professionally accredited by the Australian Computer Society and Engineers Australia.
Telecommunication and network engineering

Bachelor of Engineering (Telecommunication and Network Engineering) (Honours)

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 (CAS)
Application: VTAC (Semester 1) or direct (all intakes)
VTAC code: 3400234901 (CSP), 3400234903 (IFP)
2014 Round 1 Clearly-in ATAR: n/a

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 telecommunication 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
- Wireless communications

Career opportunities
Graduates may find rewarding careers in the converging business, telecommunications, multimedia, computing and information technology industries.

They may find roles as an internet applications engineer or manager, telecommunications systems designer, broadband network designer, embedded telecommunications systems designer, embedded software systems designer, network switching and protocol designer, or analyst/designer/manager of internal corporate broadband networks.

Professional recognition
Graduates may be eligible for membership of the Australian Human Resources Institute, Australian Institute of Management, Engineers Australia, Financial Services Institute of Australasia, Governance Institute of Australia and Stockbrokers Association of Australia.

The human resource management major is professionally accredited by the Australian Human Resources Institute.

The telecommunication and network engineering degree is professionally accredited by the Australian Computer Society and Engineers Australia.
Telecommunication and network engineering (continued)

Bachelor of Engineering (Telecommunication and Network Engineering) (Honours)/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 (CAS)
Application: VTAC (Semester 1) or direct (all intakes)
VTAC code: 3400234911 (CSP), 3400234913 (IFP)
2014 Round 1 Clearly-in ATAR: n/a

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. Elective units prepare students to obtain both Cisco Systems and Microsoft Industry certificates.

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
- 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 may be eligible for membership of Engineers Australia.

The computer science degree is professionally accredited by the Australian Computer Society.

The telecommunication and network engineering degree is professionally accredited by the Australian Computer Society and Engineers Australia.
Vice-Chancellor’s Scholarships
Students may select a bachelor degree in the relevant study area. For a list of applicable courses, visit www.swinburne.edu.au/scholarships.

Application: VTAC (Semester 1 only)
Minimum ATAR: 95.00
Recipients receive $5000 per annum for the normal duration of their chosen course, plus a one-off payment of $2000 towards an international study experience (subject to academic performance and other scholarship conditions).

Arts and Social Sciences
VTAC code: 3400234101 (CSP)

Business
VTAC code: 3400234031 (CSP)

Engineering
VTAC code: 3400234531 (CSP)

Information Technology
VTAC code: 3400234621 (CSP)

Dean’s Scholarships
Students may select a bachelor degree in the relevant study area. For a list of applicable courses, visit www.swinburne.edu.au/scholarships.

Application: VTAC (Semester 1 only)
Minimum ATAR: 90.00
Recipients receive $2500 per annum for the normal duration of their chosen course, plus a one-off payment of $2000 towards an international study experience (subject to academic performance and other scholarship conditions).

Arts and Social Sciences
VTAC code: 3400234891 (CSP)

Business
VTAC code: 3400234781 (CSP)

Engineering
VTAC code: 3400210031 (CSP)

Information Technology
VTAC code: 3400210231 (CSP)

George Swinburne Scholarship
Students may select a bachelor degree in their chosen area of study. For a list of applicable courses, visit www.swinburne.edu.au/scholarships.

Application: VTAC (Semester 1 only); students should complete the VTAC Scholarship Application
Minimum ATAR: 85.00
Recipients receive $1000 per annum for the normal duration of their chosen course, plus a one-off payment of $2000 towards an international study experience (subject to academic performance and other scholarship conditions).
KEY DATES

Throughout 2014
One-on-one course adviser appointments

3 August 2014
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