

Bachelor of Computer Science

swinburne.edu.au/international

The Bachelor of Computer Science involves the use of the most up-to-date technology and methods, and includes a major emphasis on software development. The course is oriented towards applications in areas such as defence, aerospace and medicine, where complex software plays a major role, often of a safety-critical nature, as well as in businesses that require extensive computer support, such as banking and manufacturing.

Course snapshot

Duration	3 years full-time
Campus	Hawthorn (Melbourne)
Fees	A\$29,960 (annual for 2019)*
Intakes	March, August

*Fees displayed are relevant to 2019 and are subject to annual review. Fees are based on a student's study load in each semester. Please see website for more.

Career outcomes

As a graduate you will develop fluency in a range of programming languages, including C++, C#, Objective C and Java. Possible careers include software engineer, software developer, games developer, computer application developer, user-interface analyst and network security specialist. See further career opportunities listed under each major area of study.

Entry requirements

- English language proficiency
- Completion of Australian Year 12 or equivalent (please see website for details)

Scholarship opportunities

Scholarships of up to 25 per cent off tuition fees are available for selected students who apply for and begin this two-year master by coursework program. For more on scholarships, visit swinburne.edu.au/international/scholarships

Why Swinburne?

A world-ranked university in Melbourne, Australia, Swinburne is focused on creating careers. Upon graduation, our students are career-ready professionals who regularly find employment with the world's best companies, including PricewaterhouseCoopers, IBM, Siemens, Mercedes-Benz and more.

Swinburne is proud to be recognised as one of the world's top universities under 50 years, ranked number 45 in the 2019 QS Top 50 Under 50

Situated in Hawthorn, just ten minutes by train from Melbourne's city centre, Swinburne boasts shops, cafes and a train station right on its doorstep. With high-quality teaching and research, state-of-the-art facilities, student accommodation options and a range of support services, Swinburne is the ideal choice for students.

Industry connections

For over 50 years, Swinburne University of Technology has been partnering with leading organisations to offer students practical learning and authentic workplace experiences. Many of our students undertake industry-linked projects as part of their studies.



"I chose Swinburne because it offers one of the best courses in computer science in Victoria. Swinburne had one of the highest ratings for employability and that was very important to me. The course content is also relevant to the industry and has a lot of cutting-edge technology. Definitely if you're studying IT in Victoria, I would recommend Swinburne."

Amir

Studying Bachelor of Computer Science

creative
innovative
different

KNOW
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Course overview

You must complete the following units of study:

- 8 core units (as below)
- 8 major units
- 8 elective units

Core units

- Computer and Logic Essentials
- Introduction to Programming
- Creating Web Applications
- Networks and Switching
- Fundamentals of Data Management
- Professional Issues in Information Technology
- Software Engineering Project A
- Software Engineering Project B

Majors

Cybersecurity

Learn the fundamentals of encryption systems, access control, the internet and get into the minds of malicious hackers and cyber-criminals. Learn their tricks and how to defeat them.

Units of study

- Technical Software Development
- Network Routing Principles
- IT Security
- eForensic Fundamentals
- Information Systems Risk and Security
- Information Technology Project Management
- Network Security and Resilience
- Secure Remote Access Networks

Career outcomes

Graduates will be able to secure operating and software systems on heterogeneous computing devices or environments. They may find employment in roles as a security consultant, information security analyst, network or security administrator, or cybersecurity penetration tester.

Data Science

Learn the statistical methods and tools needed to manage big data sets and the visualisation techniques needed to represent and understand that data.

Units of study

- Foundations of Statistics
- Object-Oriented Programming
- Analysis of Variance and Regression
- Statistical Computing
- Data Visualisation
- Information Technology Project Management
- Data Mining
- Multivariate Analysis

Career outcomes

Graduates will be able to apply their statistical knowledge and visualisation techniques in big data sets and perform data analytics for business process improvements. They may find employment as a business analyst, data scientist, data solutions manager, information systems analyst or market intelligence analyst.

Games Development

Focus on the design and programming of computer games and other interactive software. Gain skills in software development using an object-oriented approach and specialist areas in games design and development. Learn about the creative and design aspects of multimedia and internet technologies, particularly as applied to games development.

Units of study

- User-Centred Design
- Object-Oriented Programming
- Digital Games Prototyping
- Development Project 1 – Tools And Practices
- Artificial Intelligence for Games
- Intelligent Systems
- Games Programming
- Development Project 2 – Design, Planning and Management

Career outcomes

Graduates will be able to design and develop different types of computer games and other interactive software. They may find employment as a digital content producer, games designer or programmer, multimedia developer, software designer or developer.

Internet of Things

Gain the core programming skills needed to program devices and develop software solutions. Learn to problem-solve through analysing data from internet-connected devices.

Units of study

- Foundations of Statistics
- Object-Oriented Programming
- Cloud Computing Architecture
- IT Security
- Software Development for Mobile Devices
- Information Technology Project Management
- IoT Programming
- IoT Launcher Project

Career outcomes

Graduates will be able to program IoT devices and develop software solutions for internet-connected devices. They may find employment as a mobile application developer, full stack software developer, solution architect, consultant or data scientist.

Network Design

Learn how to secure information and communication systems and become competent in computer network technologies and security. Study programming, internet technologies, systems analysis and design, database technologies and software engineering, as well as advanced topics in computer networks and security.

Units of study

- Network Administration
- Technical Software Development
- Network Routing Principles
- Information Technology Project Management
- Enterprise Network Server Administration
- UNIX for Telecommunications
- Design and Management of Networks
- Advanced Switching

Career outcomes

Graduates will be able to design and build information and communication systems, and be competent in computer network technologies and security. They may find employment as a security consultant, information security analyst, network or security administrator or cybersecurity penetration tester.

Software Design

Learn the algorithms that drive big data, facilitate green computing and cybersecurity, and underpin the next generation of computer systems.

Units of study

- Computer Systems
- Object-Oriented Programming
- Data Structures and Patterns
- Introduction to Artificial Intelligence
- Languages in Software Development
- Information Technology Project Management
- Concurrent Programming
- Topics in Computer Science

Career outcomes

Graduates will be able to apply algorithms needed for the next generation of computer systems, and apply knowledge to design software applications. They may find employment as a systems and mobile application engineer, quality assurance engineer, software designer or developer, or systems engineer.

Software Development

Learn how to architect big systems, write phone and tablet apps, and produce software that is better than industry standard. Then scale your applications up to the cloud for hacker-proof, robust and reliable software applications.

Units of study

- User-Centred Design
- Object-Oriented Programming
- Development Project 1 – Tools And Practices
- Data Structures and Patterns
- Software Development for Mobile Devices
- Creating Secure and Scalable Software
- Interface Design and Development
- Development Project 2 – Design, Planning, and Management

Career outcomes

Graduates will be able to program, secure and scale different types of software applications, such as website, mobile phones, tablets. They may find employment as a systems and mobile application engineer, quality assurance engineer, software architect or designer, or systems engineer.



How to apply

Visit our website for step-by-step application instructions: www.swinburne.edu.au/international/apply/

More information

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