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SWINBURNE  
UNIVERSITY OF  
TECHNOLOGY

Faculty of Information and  
Communication Technologies  
**School Education Programs**

[www.swinburne.edu.au/ict/schools](http://www.swinburne.edu.au/ict/schools)



**Helping teachers and students in three ways:**

- ▶ Come to Swinburne
- ▶ We visit your school
- ▶ School education programs online

# Come to Swinburne!

## VCE Software Development Day

Swinburne's Computer Science and Software Engineering academics have developed an interactive, hands-on workshop for Year 12 VCE Software Development Units 3 and 4 students, based on the VCE Software Development curriculum. Students will be guided through a computer game-based problem, starting with the use of design tools. They will then create the algorithm, create the code and then test the code. Students will be shown examples of networking hardware and will learn about the different types of security threats and how they affect systems. This full-day program is based on sections of the 2006 and 2007 examinations in which students scored least marks (as stipulated by the Victorian Curriculum and Assessment Authority). Topics include:

- ▶ Algorithms and Test Tables
- ▶ Software Design
- ▶ Networking
- ▶ Security

Students will find out about the different career pathways and employment opportunities in the Information and Communication Technologies (ICT) industry, with a focus on the software development industry. The day will conclude with a presentation by current Swinburne Professional Software Development students showcasing their own projects, giving current Year 12 students an insight into university software projects and allowing them to see the pathways this subject offers.

**Date:** Term 3 2008, 16 and 24 July

**Time:** 9.30am–3.00pm

Lunch provided

## VCE Business and Technology Day

In today's modern and global business world, organisations depend on ICT to achieve strategic goals and objectives. Year 12 students undertaking VCE Business Management are invited to attend this full-day workshop, designed to enrich their VCE studies and expose them to tertiary studies, focusing on the application of Information Technology in business. Swinburne's Business Information Systems academics have developed workshops focusing on the VCE Business Management curriculum and will take students through hands-on practical sessions including:

- ▶ Managing information and change – group activity
- ▶ Exploring business analysis software – computer lab
- ▶ Large-scale organisations and operations management

This is a fantastic opportunity for young business students to find out more about the application of Information Technology in the modern business environment.

Students will also have the opportunity to find out more about course and career options available to business graduates.

**Date:** Term 3 2008, 23 and 25 July

**Time:** 9.30am–3.00pm

Lunch provided

## VCE Physics Day (Telecommunication and Network Engineering)

Designed by Swinburne's Telecommunications academic group, this full-day program has been developed to enrich the studies of students undertaking Units 3 and 4 VCE Physics. This day will focus on VCE Physics Unit 4, with references to Unit 3 as prescribed in the study design. Students will gain further knowledge in:

- ▶ electronics
- ▶ photonics
- ▶ interactions of light and matter

In addition to the theoretical material covered throughout the day, students will be provided with real-world examples and demonstrations of how the laws of physics are applied to areas including optical fibres and networking and wireless networking. Students will hear from one of Swinburne's leading academics about the application of physics and the implications on online virtual worlds (such as Second Life). This presentation will look at how high-speed internet access has enabled the illusions of multiplayer virtual worlds, and how the speed of light constrains that illusion despite the best efforts of online game developers.

**Date:** Term 3 2008, 17 and 18 July

**Time:** 9.30am–3.00pm

Lunch provided

## Year 12 VCE ICT Student Awards Day

Swinburne's Faculty of Information and Communication Technologies offers its ICT awards day program for high-achieving Year 12 IT Applications and Software Development students. Students are selected by their VCE IT teachers to take part in this program, which is designed to academically enrich students in the study of Information and Communication Technologies. Students will take part in interactive sessions and activities on:

- ▶ Games Programming
- ▶ Information Systems
- ▶ Networks and Online Security
- ▶ Astronomy – a 3-D virtual reality tour
- ▶ VCE Exam Insight

Academic staff will provide students with insights on topics included in the VCE curriculum and previous examinations.

**Dates:** 26 June, 1 and 3 July 2008

**Time:** 9.30am–3.00pm

Lunch provided

## Years 9 and 10 Techno Showcase

This half-day interactive program highlights future areas of study in ICT, in a practical and action-packed session. This program showcases new technologies and how they relate to future VCE study choices in preparation for university. Students will get hands-on experience and will learn game design, network security and hear about the future of the internet. The session will conclude with a 3-D AstroTour in Swinburne's virtual reality theatre.

**Date:** 9 October 2008

**Time:** 11.00am–3.00pm

Lunch provided

## AstroTours

AstroTours are 50-minute, guided journeys through the universe in 3-D. Using innovative virtual reality technologies, AstroTours are designed to educate and entertain audiences about astronomy in stereoscopic 3-D. Special lightweight glasses fitted with polaroid lenses provide the simulated three-dimensional effect. Each AstroTour is hosted by a professional astronomer who adapts the content to the requirements and learning outcomes of the audience. AstroTours are recommended for audiences aged seven years or over, and are available for primary and secondary school groups as well as the general public.

**Date:** ongoing throughout 2008

**Time:** 9.00am–3.00pm

**Cost:** \$7 primary, \$8.50 secondary

## Teacher professional development

Swinburne's Faculty of Information and Communication Technologies, in collaboration with the Victorian Information Technology Teachers Association (VITTA), will be running professional development (PD) days for secondary school teachers to help them keep up to date with the latest information in ICT education. Swinburne will be working with schools to identify the most-needed areas of PD. If there is a particular area of PD you are interested in, please contact Swinburne's Faculty of Information and Communication Technologies Outreach Officer, who will be able to assist you.



# We visit your school!

Swinburne's Faculty of Information and Communication Technologies offers dedicated staff to come and visit your school for a range of activities from guest speaking through to interactive presentations in the classroom. All visits are offered to schools at no charge as part of Swinburne's initiative to enhance the profile of ICT in schools. We have a range of exciting programs that we can bring to your school. These include:

## Presentation on Career Pathways

The ICT industry continues to grow and change and Swinburne is committed to keeping schools up to date on these changes and trends. We have staff available to visit your school and deliver presentations on career pathways in ICT to suit your needs.

These presentations cover everything from careers to courses, future IT technology and key employment growth areas.

In addition to Swinburne academic staff, current Swinburne ICT students provide their personal experiences on courses, Industry-Based Learning and university life.

Swinburne staff presenting 'Career Pathways' are joined by high-profile industry partners keen to visit schools and discuss the importance and impact of ICT on everyday life and business.

## Life after Year 12 – student panel

This session will feature a panel of students studying ICT at Swinburne. Students discuss the decision-making process that led them to choose their respective courses; their career aspirations; the transition from school to university life; and future employment opportunities. This is a wonderful opportunity for students to meet, hear from and ask questions of current university students.

## Industry guest speakers

The range of jobs and pathways in ICT is complex, and finding a relevant guest speaker from industry can be difficult for schools. Swinburne has many industry partners, including IBM, National Australia Bank, Foster's, Deloitte Forensics, SEEK and Accenture. Our industry partners are keen to visit schools and talk to students about the future of ICT – from the internet to supercomputers, through to society's dependence on technology.

## Years 9 to 11 interactive ICT classes

Swinburne has a range of interactive programs that can be delivered at your school.

**Underneath the Surface of Today's Web Pages** – A look at today's most popular websites, including Facebook, MySpace, YouTube and LimeWire, and the surprising logistics behind making them reality. This session can be tailored over one or two periods to suit the needs of your class.

**Game On!** – A hands-on introduction to the popular games programming and design industry. This session, run in a computer lab, includes working through documents that allow students to jump in and program their own computer game!

**Hacking, Cracking and Viruses** – A look at the alarming increase of security threats in computer systems that affect home users and big corporations today. A Swinburne Network Design and Security academic will come out to your school and show students how viruses and other security threats breach systems, and how you can protect yourself.



## Online Game Developers

**Defeating the Laws of Physics** – This presentation (suitable for VCE Maths Methods, Specialist Maths and Physics students) looks at how high-speed internet access has enabled the illusions of multiplayer virtual worlds, and how the speed of light constrains that illusion despite the best efforts of online game developers. Students will hear how real-world physics and today's underlying internet technologies affect the immersion experience of our virtual online worlds.

**Swingame 08** – Swinburne's Software Development team has created a computer games design and development competition for Year 11 and Year 12 students. One of the competition creators will visit your school to present this initiative and introduce students to the concepts behind making games work.

## VCE masterclasses

There are many interesting and challenging outcome topics in the Year 11 and 12 VCE IT Applications and Software Development curriculum. Students will benefit from guest speakers coming to your school to present on the topic of your choice. Swinburne can provide an academic staff member who will provide students with a thorough understanding of the topic at hand. The following is a list of topics related to the VCE IT curriculum which can be presented to your class.

### Unit 1 IT in Action

- O1 – Effective On-Screen Information Products, Creating and Testing
- O2 – Introduction to Database Theory and Practical Elements
- O3 – An Up-to-Date Run-down of the Issues Facing IT

### Unit 2 IT Pathways

- O1 – ICT Career Pathways
- O1 – Introduction to Programming Concepts
- O2 – Networks, Types, Media, Topology, Hardware/Software
- O3 – Working Collaboratively

### Unit 3 IT Applications

- O1 – Databases: Structure, Capabilities and Design
- O2 – Networks, Software/Hardware, Media, Topology, Types
- O2 – Virtual Teams: Working in Virtual Teams, Setting Them Up, Advantages/Disadvantages

### Unit 4 IT Applications

- O1 – User Documentation, Design and Creation
- O1 – Spreadsheet, Advanced Functions
- O2 – Data Security
- O2 – Ethical Use of Data

### Unit 3 Software Development

- O1 – Data Security
- O1 – Network Design
- O1 – Data Flow Diagrams
- O1 – System Flow Charts and Structure Charts
- O2 – Algorithms/Pseudocode
- O2 – Nassi Schiederman Diagrams and Flow Charts
- O2 – Designing High-Quality User Interface
- O2 – Legal/Ethical Consideration of Programmers
- O2 – Testing Techniques for Programs
- O2 – Ensuring You Have the Necessary Hardware to Run Your Software

### Unit 4 Software Development

- O1 – Methods and Techniques of Representing an Algorithm
- O1 – Programming
- O2 – Project Management Concepts and Techniques

# School Education Programs online!

## Our website

For more detailed and up-to-date information about any of our programs, please visit our website:

**[www.swinburne.edu.au/ict/schools](http://www.swinburne.edu.au/ict/schools)**

## Swingame

As part of Swinburne's initiative to increase students' interest in and awareness of the technical, design, communication and teamwork skills involved in software development, the Faculty of Information and Communication Technologies has developed a computer games design competition for Year 11 and Year 12 students.

The competition is an exciting opportunity for students to win great prizes, gain real-world experience in software and games development, and work on a fun, creative project with friends.

For more details go to:

**[www.swingame.com](http://www.swingame.com)**

## Swinburne Astronomy Online – short course

A fully online short course in astronomy specifically designed for Science, Maths and Physics teachers!

If you are interested in astronomy and want to learn more but don't have the time to do a semester-long course, this is the online course for you. This course will give you additional knowledge and expertise in astronomy to take back to your classroom to teach.

This tailored short course is a six-week, non-assessed online course taught by professional PhD astronomers and is ideal for primary, secondary and college teachers.

Topics include:

- ▶ The Earth and the Moon
- ▶ The Solar System
- ▶ Our Sun and Other Stars
- ▶ The Milky Way and Galaxies
- ▶ The Universe and Cosmology

For more information visit:

**[astronomy.swinburne.edu.au/sao/shortcourse](http://astronomy.swinburne.edu.au/sao/shortcourse)**

For more detailed and up-to-date information about any of our programs, please contact Mr Robert Mercer on:

Telephone: (03) 9214 8768

Email: [rmerc@swin.edu.au](mailto:rmerc@swin.edu.au)

or visit our website: **[www.swinburne.edu.au/ict/schools](http://www.swinburne.edu.au/ict/schools)**

The information contained in this brochure was correct at the time of printing (March 2008) but is subject to alteration or amendment without notice by Swinburne.

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