Information Technology A/T/V

Why study Information Technology?

When you study information technology, you will learn the fundamentals of design, development, installation, and implementation of many types of computer information systems and networks. Possible careers that you might pursue in Information Technology include network engineer, systems administrator, systems engineer, programmer or web designer.

Recommended Pathways

A/V Course

The A/V Course develops skills and knowledge required for entry into CIT courses and entry level employment.

T/V Course

The T/V Course develops skills and knowledge for both CIT courses and university studies. This stream provides the assumed knowledge for Information Technology based courses at university.

ICT20115 Certificate II in Information, Digital Media and Technology

Students studying Information Technology in both the A/V Course and the T/V Course can gain a nationally recognised certificate in Information, Digital Media and Technology through their IT course. The Certificate is awarded at the end of Year 12 on completion of 7 core competencies and 7 elective competencies, and an optional Structured Work Placement.

Units

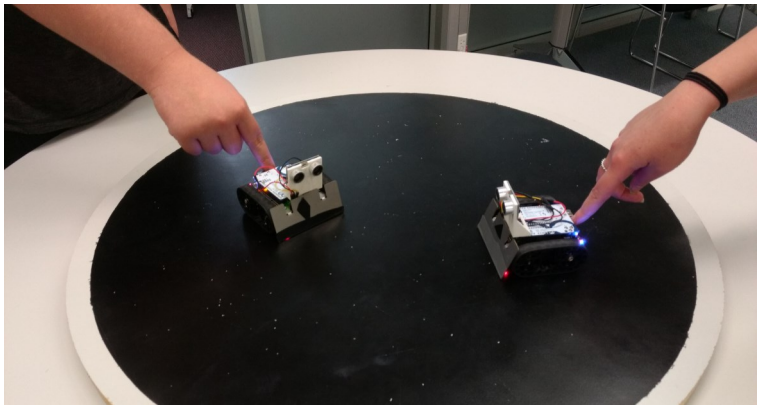
Programming Stream

Programming Fundamentals A/T/V

This unit introduces students to problem solving procedures, definition and representation of algorithms, problem solving by computer, the imperative programming paradigm and program testing and writing documentation.
Topics covered in this unit include systematic analysis of problems, and development of solutions and implementation of those solutions using a procedural programming language.

Intermediate Programming T/V

Intermediate Programming aims to further develop the problem analysis and software development skills of students. Topics covered in this unit include: Object-oriented programming development methodologies, classes, objects, inheritance, and diagramming techniques appropriate for object-oriented programming. Students will also learn how to create class packages, handle exceptions, create a model-view-controller user interface, event handling and concepts in multi-threaded programming.

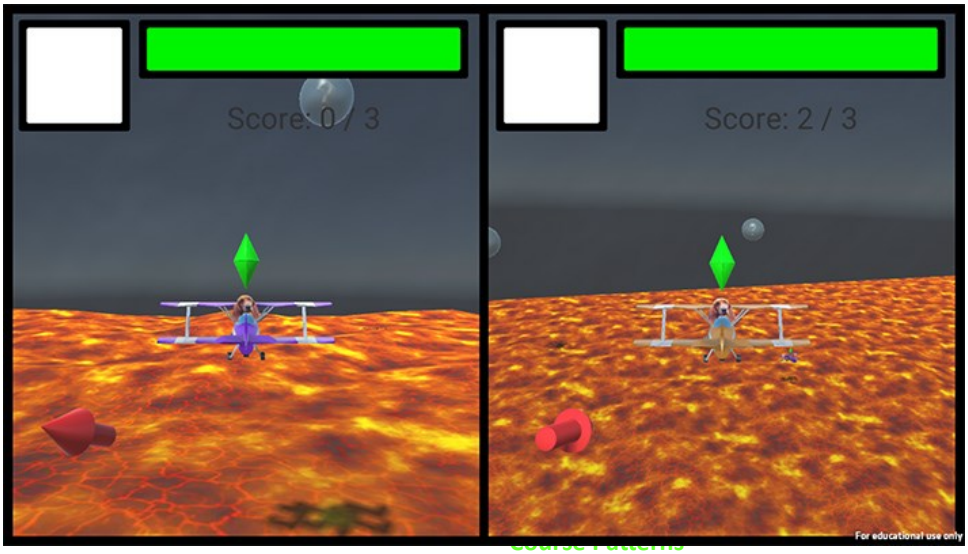


Computer Games Programming and Design A/T/V

Games programming introduces students to important concepts in developing computer games, and enables students to develop a simple computer game. Topics covered in this unit include: the history of computer games; game genres, social and ethical implications of computer games and future trends; game theory. Students will develop skills in designing, implementing, testing and documenting an original game using a visual programming environment.

Robotics & Intelligent Systems A/T/V

Robotics and Intelligent Systems aims to develop knowledge, skills and understanding of robotics and embedded systems. Robotics is a growing area in Information Technology, and an understanding of robotics is essential for future IT professionals. Topics covered in this unit include: the history and contemporary context of robotics, ethical issues related to the application of robotics, robot construction methodology, and robotics programming skills. Students will develop skills in designing, constructing and programming robots to carry out simple and complex functions.



Information Technology A/T/V *(continued)*

Students can choose from 3 streams to complete a major in Information Technology: Networking and Applications; Web and Digital Media; and Programming. A double major can be achieved by combining units from 2 or more streams. There are no prerequisites for the course in Information Technology, but some units do have pre-requisites. Cisco Networking follows a tightly structured program, and Programming Foundation is the required entry point for subsequent programming units. Each semester unit consists of two half-semester (or term) units.

Digital Media Stream

Website Design A/T/V

In this unit students will develop the knowledge and skills to create simple to complex websites using HTML, JavaScript and Cascading Style-sheets. Topics covered include website and visual design principles, creating lists and tables, writing JavaScript routines, use of graphics files in websites and use of web page design tools.
Students will extend their knowledge to creating interactive forms; creating images and navigation elements for websites; and using advanced features of a web authoring application for website design.

Web Applications A/T/V

This unit looks at creating web applications which integrate dynamic content sourced from a database into web pages. This will be achieved using the following skills: scripting languages such as PHP, ASP.Net, Python; and database connectivity; creating, reading, updating and deleting database records from a web form; managing security and authentication.

Digital Media Foundations A/T/V

This unit investigates the tools and techniques required for integrating a variety of digital media content into websites and other applications. Topics covered include: understanding issues relating to file size, files types and download rates when incorporating files into websites; editing and optimising sound and video files for inclusion in websites; designing and creating complex animations for inclusion in websites and mobile applications.

2D Graphics and Animation A/T/V

This unit aims to develop knowledge and skills involved in creating and processing digital images and animations. Topics covered in this unit include: digital image capture and storage, digital image enhancement, manipulation and image crafting techniques, image file formats and vector and bit-mapped images. 2D Animation focuses on the use of scripting to create interactive animations – including user control of animations.

3D Modelling, Animation and Texturing A/T/V

3D Graphics and Animation aims to develop students as competent users of 3D modelling and animation software packages. Topics covered in 3D Modelling include: creating static 3D models using a range of techniques, applying materials and textures to 3D models, lighting and rendering 3D models using virtual cameras.

Topics covered in 3D Animation include: understanding animating with key-frames and other animation techniques,

animating a 3D scene, including models lights and cameras, adding sounds to 3D scenes, creating biped animation, and compositing video, sound and animation.

Networking and Applications Stream

Network Foundations A/T/V

Network Foundations covers of range of topics: advanced data communications, layered models, physical aspects of electronic communication, cabling, wireless networking, topologies, network design and documentation and the Internet.

Systems Analysis and Design T/V

Systems Analysis and Design refers to the tools and methods software engineers use to design new information systems. Students will investigate: different types of information systems; the systems development life cycle; structuring system requirements through conceptual data modelling and defining the steps of the conceptual schema design process.

Systems implementation covers the construction of a simple information system using a commercial relational database management system, writing and testing programs that meet specification requirements and data conversion strategies.