Digital Technologies: IT

Digital Technologies

My Program Rules

Creative IT

Game Development & Programming

Creative IT

Business IT

VCE Applied Computing

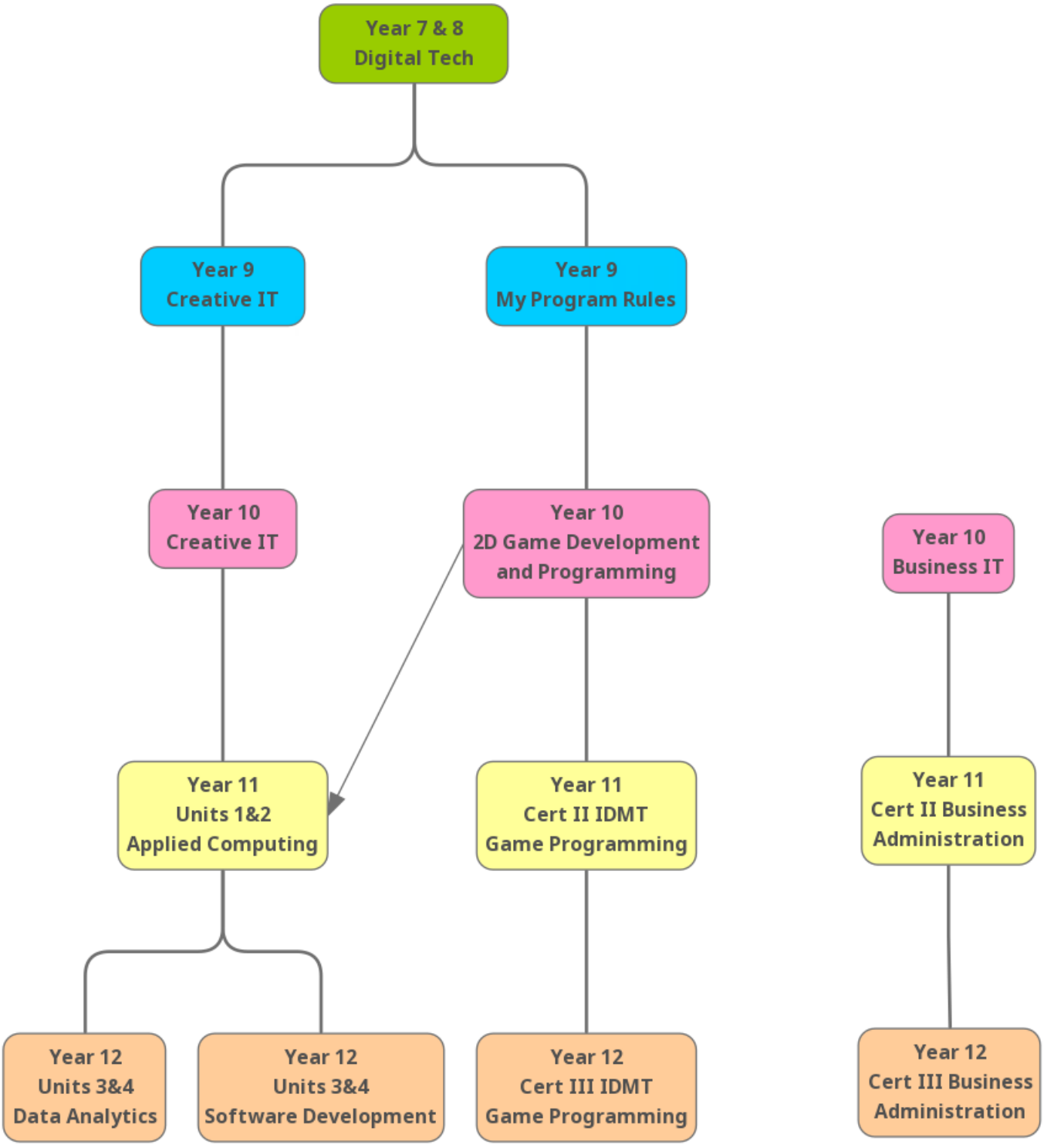
VCE Software Development

VCE Data Analytics

VET Certificate III in Information, Digital Media & Technology (Game Development)

VET Certificate II and III in Business Administration

Information Technology Pathways



Digital Technologies
Year 7 - 8

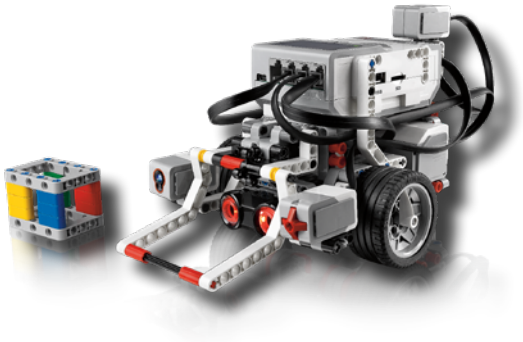
At Years 7 and 8, students will develop their digital skills and computer vocabulary by covering hardware, software and networks. They will investigate effective file management strategies, the benefits of backing up important data, and the binary representation of digital assets. They will enhance their problem-solving skills by looking at how digital technologies can be used to solve real world problems.

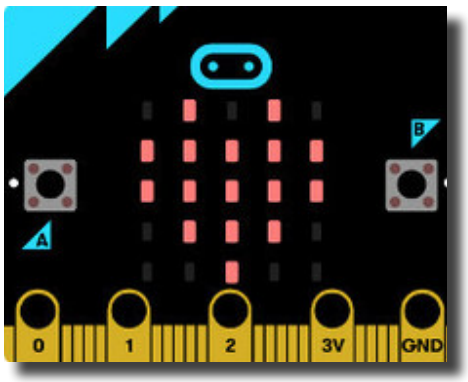
Year 7 Digital Technologies

- Computer Basics
- 3D Modelling
- Programming
- Image Manipulation

Year 8 Digital Technologies

- CAD
- Robotics
- Data Manipulation (Excel spreadsheets)
- Networking





Digital Technologies
Year 9

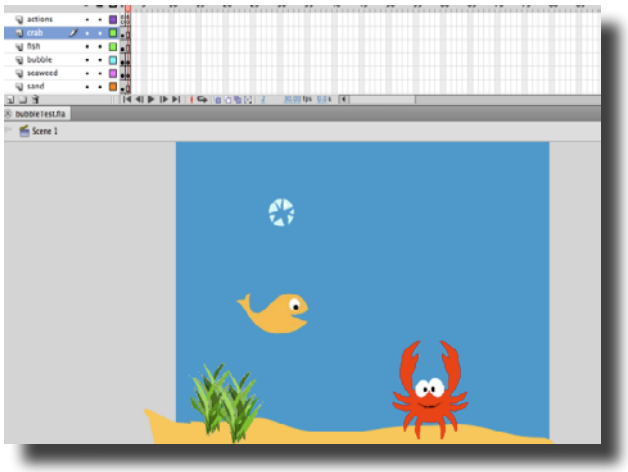
At Year 9, students select from 2 electives: My Program Rules and Creative IT. Students will investigate the role of hardware and software, analyse data to create information, and design and create interactive solutions.

Information Technology subjects in Year 9 are part of the Technology and Art electives. Students may select Creative IT and/or My Program Rules. Students in Year 9 need to complete at least one compulsory unit of Technology and they need to ensure they complete at least three units of Technology over Years 9 and 10.

Accelerated Studies
Students with strong academic performance in IT may begin Applied Computing Units 1 & 2 or VET Certificate III in IDMT (Game Programming) at Year 10.

Creative IT
This semester unit consists of learning how the computer can be used as a tool for making creative solutions. Skills and knowledge are developed in image manipulation and animation using Adobe Creative Suite, an industry standard software package. The binary representation of images and text, file formats, file compression, and screen resolution are all uncovered within this creative unit.

My Program Rules
This semester unit delves into the advances in robotics and artificial intelligence and consists of learning how a computer system can be used as a tool for making custom applications and games. Real-world problems will be decomposed, considering functional and non-functional requirements, to identify stakeholder needs. Algorithms will be designed, both diagrammatically and using structured English, then skills and knowledge are developed in controlling a robot and coding using an object-orientated programming language.



Digital Technologies
Year 10

The Year 10 IT curriculum has been designed to cater for a wide range of interests and abilities. Students will decompose real-world problems, considering functional and non-functional requirements, and will design and develop working solutions. They will analyse and visualise data to create meaningful information.

Information Technology subjects in Year 10 are part of the Technology electives. Students may select Creative IT and/or 2D Game Development & Programming and/ or Business IT.

Accelerated Studies
Students with strong academic performance in IT may begin Applied Computing Units 1 & 2 or VET Certificate III in IDMT (Game Programming) at Year 10.

Creative IT
This semester unit consists of learning how the computer can be used as a tool for making creative solutions. Students will develop their skills and knowledge using the Adobe Creative Suite, an industry standard software package, to create advanced images, animation and/or video. They will analyse data from real-world problems and produce data visualisations. Students will investigate the role of 3D printing in industry and will design and print innovative 3D prototypes of their own.

Business IT
This semester unit consists of learning how computers are used to assist in the running and management of a business. Skills and knowledge are developed in web-development, spreadsheets and business documentation. Students will create solutions for sharing ideas and information online, considering social contexts and legal considerations.

2D Game Development & Programming
This semester unit consists of learning how the computer can be used as a tool to design and make retro 2D games and to develop modular programs. Skills and knowledge are developed in game creation using GameMaker in addition to programming in an object-oriented programming language. Relevant areas of the game development process are covered, including design and evaluation. Algorithms are designed diagrammatically and in structured English.

Digital Technologies VCE

VCE Applied Computing focuses on the strategies and techniques for creating digital solutions and to manage the threats to data, information and software security. It examines information systems and how their interrelationships affect the types and quality of digital solutions. Students will acquire and apply knowledge and skills to use digital systems efficiently, effectively and innovatively when creating digital solutions such as data visualisations and modular programs. They will investigate legal requirements and ethical responsibilities with respect to the security and integrity of data and information. Through a structured approach to problem solving they develop an awareness of the technical, social and economic impacts of information systems.

VCE Applied Computing provides a pathway to further studies in areas such as business analysis, computer science, cybersecurity, data analytics and data science, data management, games development, ICT, networks, robotics, software engineering and telecommunications, and other careers relating to digital technologies.

Scored assessment at units 3&4 consists of 50% coursework and 50% examination.

Unit 1 - Applied Computing
In this unit students are introduced to the stages of the problem-solving methodology and will investigate how data is used within databases and spreadsheets to create data visualisations. They will also make use of a programming language to develop working software solutions.

In Area of Study 1, as an introduction to Data Analytics, students identify and collect data in order to present their findings as data visualisations. They present work that includes database, spreadsheet and data visualisations.

In Area of Study 2, as an introduction to Software Development, students use a programming language to create working software solutions.

Areas of Study include:

- Database, spreadsheet, and visualisation software
- Programming

Unit 2 - Applied Computing
In this unit students focus on developing innovative solutions for an opportunity that they have identified. They propose strategies for reducing security risks to data and information in networked environments.

In Area of Study 1 students work collaboratively to create an innovative solution in an area of interest. The innovative solution can be presented as a proof of concept, a prototype or a product.

In Area of Study 2 students investigate networks and the threats, vulnerabilities and risks to data and information. They propose strategies to protect the data accessed using a network.

Areas of Study include:

- Innovative solutions
- Network security

Unit 3 - Software Development
In this unit students apply the problem-solving methodology to develop working software modules using a programming language.

In area of study 1 students respond to teacher-provided solution requirements and designs to develop a set of working modules using a programming language. In area of study 2 students identify and analyse a real-world business need or opportunity and design a software solution.

Areas of Study include:

- Introduction to programming
- Designing a software solution

Unit 4 - Software Development
In this unit students focus on how the information needs of individuals and organisations are met through the creation of software solutions.

In area of study 1 students develop their preferred design from Unit 3 into a software solution using an object-oriented programming language. They undertake testing then evaluate the efficiency and effectiveness of the solution. In area of study 2 students examine the security practices of an organisation and the risks to software and data.

Areas of Study include:

- Programming and evaluating a software solution
- Cybersecurity: software security

Unit 3 - Data Analytics
In this unit students identify and extract data using software tools such as database, spreadsheet and data visualisation software to create infographics. Students develop an understanding of the analysis, design and development stages of the problem-solving methodology.

In Area of Study 1 students develop data visualisations and use appropriate software tools – including database, spreadsheet and data visualisation software - to present findings.

In Area of Study 2 students propose a research question, prepare a project plan, collect and analyse data, and design infographics or dynamic data visualisations.

Areas of Study include:
- Database software, spreadsheet software and data visualisation software.
- Data manipulation tool and visualisation tools

Unit 4 - Data Analytics
In this unit students determine the findings of a research question by developing infographics or dynamic data visualisations based on large complex data sets. The investigate security strategies used by organisations to protect data and information from threats.

In Area of Study 1 students develop their preferred design from in Unit 3 into infographics or dynamic data visualisations and evaluate the solutions and project plan.

In Area of Study 2 students investigate the security practices of organisations and examine the threats to data and information

Areas of Study include:

- Data visualisation tools
- Cybersecurity

VCE Certificate III in IDMT Game Programming (VET)

The VET IDMT Certificate III in IDMT (Game Programming) provides students with the knowledge and skills needed to develop games using Unity 3D. It is designed to introduce the many career opportunities available for programmers in games, interactivity and creative industries. The certificate has been developed by AIE (Academy of Interactive Education) and is intended to give participants an understanding of skills and techniques necessary to create a range of playable games. Game programmers drive the game development process, creating the framework, functionality and interaction in the game. Regarded as the essential ingredient in the development process, game programmers are highly valued and in demand.

This certificate is offered to students at Year 11 and is designed to be continued in Year 12. Students will have full completion of Certificate III at the end of Unit 4.

Students wishing to receive a study score for Units 3&4 must undertake scored assessment. Coursework tasks contribute to 66% to the overall score and the examination contributes 34%.

Year 11 Cert III in IDMT Game Programming
Modules:

- Game Programming in Unity 3D
- Diagnosing Systems
- Technical Design for Games

Year 12 Cert III in IDMT Game Programming
Modules

- Planning a 3D Game
- Networking and Maintenance
- Game Programming
- Designing User Interfaces
- Technical Support

VCE Certificate II & III in Business (VET)

The VET Certificate II in Business Administration provides students with the basic knowledge and skills of communication, teamwork, use of business technology, the processing of financial documents, and information handling. This provides an entry point into business and the commercial world. It is recommended for students wishing to gain employment in clerical or administrative roles across all industries.

Satisfactory completion for Units 1 to 4 is based on achievement of the set modules specified for each unit. Students could be assessed using the following: workbook; work performance task; case study; product creation; test; and examination.

This certificate is offered to students at Year 11 and is completed in Year 12 with students at this level undertaking modules from the Certificate III course for partial completion.

Students wishing to receive a study score for Units 3&4 must undertake scored assessment. Coursework tasks contribute to 66% to the overall score with the examination contributing 34%.

Year 11 Cert II in Business Administration
Modules

- Contribute to health and safety of self and others
- Work effectively with others
- Deliver a service to customers
- Organise and complete daily work activities
- Create and use spreadsheets
- Process and maintain workplace information
- Use digital technologies to communicate remotely
- Use business technology
- Communicate in the workplace
- Produce digital text documents

Year 12 Cert III in Business Administration (partial completion)
Modules

- Deliver and monitor a service to customers
- Design and produce business documents
- Organise personal work priorities and development
- Organise workplace information
- Recommend products and services