Stage 5 Information and Software Technology

200 hour course plan

Project context	Outcomes		Overview of content
Project 1: Our virtual world **Statement** Students will explore the past, present and future capabilities of the Internet. • **Past:** Students will investigate the historical context and subsequent development of the Internet, identifying key developments. • **Present:** Students explore how the Internet works and the roles that a number of key elements play. Analysis of design principles used in web pages will follow, culminating in the application of those principles for web site design. • **Future:** Student research should uncover issues arising from our virtual world. **Duration:** 14 weeks	5.2.1 5.2.2 5.2.3 5.3.1	describes and applies problem-solving processes when creating solutions designs, produces and evaluates appropriate solutions to a range of challenging problems critically analyses decision-making processes in a range of information and software solutions justifies responsible practices and ethical use of information and software technology	**The Internet and web site development** • The Internet • Historical perspective of the Internet • Intranets • Uses of the Internet • Internet software • Types of protocols • World Wide Web (WWW) • Control of access to information on the web • Web site development • Features of a web site • Project development **Design, produce and evaluate** • Defining and analysing the problem • Designing possible solutions • Producing solutions • Evaluation criteria • Methods of evaluation • Management • Communication techniques • Collaboration and group work

	5.4.1	analyses the effects of past, current and emerging information and software technologies on the individual and society	**Past, current and emerging technologies** • the impact of past, current and emerging information and software technologies on the individual and society including different cultural groups such as Aboriginal and Indigenous

	5.5.1	applies collaborative work practices to complete tasks	• environmental considerations such as:
			  – disposal of obsolete technologies
			  – recycling

	5.5.2	communicates ideas, processes and solutions to a targeted audience	**Software** • Types and examples of software • Factors affecting hardware requirements • Interface design • Features and elements of a graphical user interface (GUI) **Issues** • Legal issues • Industrial issues

Note: Underlined outcomes and content indicate what is to be assessed. As we delve into creating the actual units of work it is expected that these will change.

Project context	Outcomes		Overview of content
Project 2:The digital revolution **Statement** Students will be given the opportunity to apply knowledge and skills gained from a close examination and analysis of digital media products. Digital media types to be explored include: • Graphic files: manipulation and design utilising images. • Musical composition: composition and mixing of original music for specific purposes. • Animation sequences: production processes involved in animating images. Students will conduct an investigation into social, ethical and moral issues in the digitisation of our world. **Duration:** 14 weeks	5.1.2 5.2.1 5.2.2 5.2.3	<u>selects, maintains and appropriately uses hardware for a range of tasks</u> describes and applies problem-solving processes when creating solutions designs, produces and evaluates appropriate solutions to a range of challenging problems critically analyses decision-making processes in a range of information and software solutions	**Digital media** • The purpose of digital media • Types of digital media products • <u>Data types for digital media products</u> • <u>Manipulation techniques</u> • <u>Digitisation process of data types</u> • <u>Factors affecting file size</u> • <u>Display and distribution</u> **Design, produce and evaluate** • Defining and analysing the problem • Designing possible solutions • Producing solutions • Evaluation criteria • Methods of evaluation • Management • Communication techniques • Collaboration and group work **Data handling** • <u>Data and information</u> • <u>Data forms</u> • Data coding • <u>Data sources</u> • <u>Data types</u> • Data transmission types • <u>Data storage and function</u> • <u>Data compression techniques</u>

	5.3.1	justifies responsible practices and ethical use of information and software technology	**Hardware** • Functions that hardware perform • Hardware components • Microprocessors • Hardware solutions
	5.3.2	acquires and manipulates data and information in an ethical manner	**Issues** • Social issues • Ethical issues

Project context	Outcomes		Overview of content
Project 3: A feast for the senses **Statement** Authoring and multimedia will focus on defining and identifying multimedia systems and the expanding role of multimedia in society. Students will utilise knowledge and skills to deliver a real world multimedia package. **Duration:** 12 weeks	5.2.1 5.2.2 5.2.3 5.3.1 5.3.2 5.4.1 5.5.1 5.5.2	describes and applies problem-solving processes when creating solutions designs, produces and evaluates appropriate solutions to a range of challenging problems critically analyses decision-making processes in a range of information and software solutions justifies responsible practices and ethical use of information and software technology acquires and manipulates data and information in an ethical manner analyses the effects of past, current and emerging information and software technologies on the individual and society applies collaborative work practices to complete tasks communicates ideas, processes and solutions to a targeted audience	**Authoring and multimedia** • Multimedia products • Data types • Authoring software systems **Design, produce and evaluate** • Defining and analysing the problem • Designing possible solutions • Producing solutions • Evaluation criteria • Methods of evaluation • Management • Communication techniques • Collaboration and group work **Past, current and emerging technologies** • The impact of past, current and emerging information and software technologies on the individual and society including different cultural groups such as Aboriginal and Indigenous. **Data handling** • Data sources • Data types • Data storage and function • Data compression **Issues** • Legal issues **Software** • Types and examples of software • Interface design • Features and elements of a GUI

Project context	Outcomes		Overview of content
Project 4: **An interconnected world** **Statement** This project will incorporate two tasks. • Given a written instruction set students will configure a network. • Individually students will write a report covering the steps for configuration and any problems encountered. • Given a brief students prepare documentation to implement a network for a given client. **Duration:** 15 weeks	5.1.1 5.1.2 5.2.1 5.2.2	selects and justifies the application of appropriate software programs to a range of tasks selects, maintains and appropriately uses hardware for a range of tasks describes and applies problem-solving processes when creating solutions designs, produces and evaluates appropriate solutions to a range of challenging problems	**Network systems** • A communications network • Protocols • Data transmission modes • Data transmission rates • Data transmission media • Types of networks • Client server and peer to peer networks • Components of a network • Security of information • Network topologies • Network operating systems • Factors influencing media transmission **Design, produce and evaluate** • Defining and analysing the problem • Designing possible solutions • Producing solutions • Evaluation criteria • Methods of evaluation • Management • Communication techniques • Collaboration and group work **Past, current and emerging technologies** • The impact of past, current and emerging information and software technologies on the individual and society including different cultural groups such as Aboriginal and Indigenous

	5.2.3	critically analyses decision-making processes in a range of information and software solutions	**Data handling** • Data forms • Data coding • Data types • <u>Data transmission types</u> • <u>Data security</u>
	5.3.1	justifies responsible practices and ethical use of information and software technology	**Hardware** • <u>Functions that hardware performs</u> • <u>Hardware components</u> • <u>Classification of computer hardware systems</u> • <u>Hardware solutions</u> • <u>Troubleshooting</u> • <u>Care and maintenance of hardware systems</u>
	5.3.2	acquires and manipulates data and information in an ethical manner	
	5.4.1	analyses the effects of past, current and emerging information and software technologies on the individual and society	**Issues** • Legal issues • Social issues • Ethical issues • Industrial issues
	5.5.1	applies collaborative work practices to complete tasks	**Software** • Software systems • Types and examples of software • Factors affecting hardware requirements • Interface design
	5.5.2	communicates ideas, processes and solutions to a targeted audience	

Project context	Outcomes		Overview of content
Project 5: The software development cycle **Statement** Students implement the software development cycle to create code according to a given brief. **Duration:** 15 weeks	5.1.1	selects and justifies the application of appropriate software programs to a range of tasks	**Software development and programming** • Basic programming concepts • GUI layout • Data types • Data operators • Algorithms • Control structures • Desk checking • Sub programs • Programming language • Data structures • Testing • Error correction • Documenting of programming code
	5.2.1	describes and applies problem-solving processes when creating solutions	
	5.2.2	designs, produces and evaluates appropriate solutions to a range of challenging problems	
	5.2.3	critically analyses decision-making processes in a range of information and software solutions	
	5.3.2	acquires and manipulates data and information in an ethical manner	**Design, produce and evaluate** • Defining and analysing the problem • Designing possible solutions • Producing solutions • Evaluation criteria • Methods of evaluation • Management • Communication techniques • Collaboration and group work
	5.5.1	applies collaborative work practices to complete tasks	
	5.5.2	communicates ideas, processes and solutions to a targeted audience	
	5.5.3	describes and compares key roles and responsibilities of people in the field of information and software technology	**Data handling** • Data coding • Data types **People** • Roles and responsibilities • Careers in information and software technology **Software** • Interface design • Features and elements of a GUI