**Sample Course Outline**

Computer Science

General Year 11

**Acknowledgement of Country**

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# Sample course outline

# Computer Science – General Year 11

# Semester 1 – Unit 1 – Personal use of computer systems

| **Week** | **Syllabus Content** |
| --- | --- |
| **Knowledge** | **Skills** |
| 1–2 | **Introduction*** overview of Unit 1
* assessment requirements
* student computer use policy

**Managing data*** data management techniques for personal computer use, including hierarchical storage of data using files and folders
* issues related to ethics in the storage of personal data
* features of word processing software, including common formatting functions

**Systems analysis and development*** types of computer systems, including:
	+ mobile
	+ desktop
	+ server
 | **Managing data*** apply hierarchical file management techniques for personal computer use
* use word processing software
 |
| 3–5 | **Systems analysis and development*** functions of computer hardware components, including:
	+ input
	+ keyboard
	+ mouse
	+ microphone
	+ digital camera/web cam
	+ scanner
	+ processing
	+ central processing unit (CPU)
	+ control unit (CU)
	+ arithmetic logic unit (ALU)
	+ registers
	+ primary storage
	+ random access memory (RAM)
	+ read only memory (ROM)
	+ secondary storage
	+ mechanical drive
	+ solid state drive
	+ online
	+ output
	+ monitor
	+ printer
	+ speaker/headphones
* how user wants influence the choice, use and creation of personal computer systems
 | **Systems analysis and development*** connect peripheral devices to a computer system using:
	+ ports
	+ universal serial bus (USB)
	+ Firewire
	+ PS2
	+ ethernet
	+ serial
* install simple software
 |
| 6–8 | **Systems analysis and development*** the role of an operating system
* types of hardware booting processes
	+ cold
	+ warm
* types of basic maintenance strategies and computer protection software, including:
	+ defragmentation
	+ error check
	+ disk clean
	+ back up
	+ anti-malware
* basic maintenance strategies and techniques to rectify simple computer difficulties, including:
	+ diagnosis of fault
	+ implementation of a solution
	+ description of process
* purpose of the systems development life cycle (SDLC)
* flow of data through an information system
	+ input
	+ processing
	+ storage
	+ output
* stages of the SDLC
	+ preliminary analysis
	+ analysis
	+ design
	+ development
	+ implementation
	+ evaluation and maintenance
 | **Systems analysis and development*** install simple software
* apply the following hardware booting processes
	+ cold
	+ warm
* apply basic maintenance strategies and computer protection software
* apply basic care and handling of hardware equipment measures to ensure personal safety and appropriate use of components
* apply basic maintenance strategies and techniques to rectify simple computer difficulties
 |
| 9–11 | **Managing data*** features of spreadsheet software, including:
	+ simple functions (sum, average, min and max)
	+ simple formulae (addition, subtraction, multiplication and division)
 | **Managing data*** use spreadsheet software
 |
| 12–15 | **Managing data*** features of database software, including:
	+ components of a single table database (field, record, file)
	+ data entry forms
	+ simple search techniques
	+ create a simple query
	+ simple data types (number, text, Boolean, date, currency)
 | **Managing data*** use database software
 |

# Semester 2 – Unit 2 – Personal use of communication and information systems

| **Week** | **Syllabus content** |
| --- | --- |
| **Knowledge** | **Skills** |
| 1–2 | **Introduction*** review of Unit 1
* overview of Unit 2

**Developing software*** hardware and software systems used in personal computing (applications, operating systems)
* the roles of hardware, software and the user in a computer system
* interrelationship between users, hardware and software in a personal computer system
 |  |
| 3–5 | **Developing software*** the purpose of the software development cycle (SDC)
* stages of the SDC
	+ state the problem
	+ plan and design
	+ develop the solution
	+ test the solution
	+ evaluate the solution
* requirements for software licensing, including:
	+ single user
	+ site licence
* ethical and legal issues associated with software, including:
	+ copyright
	+ piracy
* comparison of website construction tools
 | **Developing software*** modify an existing simple software solution
* develop simple software solutions using the SDC
 |
| 6–9 | **Programming*** the components of a computer program
	+ inputs
	+ processing
	+ outputs
* control structures
	+ sequence
	+ selection
	+ iteration
* the concepts of variables and data types, including:
	+ integer
	+ real
	+ character
	+ string
 | **Programming*** use variables, data types, control structures and a simple programming language to develop a software solution
* use web tools to create linked web pages
 |
| 10–11 | **Networks** **and** **communications*** key concepts, terminology and functions of common network components
	+ data transmission rates
	+ megabits per second (Mbps)
	+ gigabits per second (Gbps)
	+ wired data transmission media
	+ twisted pair
	+ fibre optic
	+ wireless transmission
* hardware components required for a personal area network (PAN) or home network, including:
	+ modem
	+ router
	+ wireless access point
	+ firewall
* concept of internet protocols, including:
	+ hypertext transfer protocol (HTTP)
	+ hypertext transfer protocol secure (HTTPS)
	+ file transfer protocol (FTP)
* methods to ensure reliability of internet data for personal use
* measures an individual can take to help maintain data privacy and security
* the role of users in maintaining the security of information transmitted through communication systems
 |  |
| 12–15 | **Networks** **and** **communications*** types of communication software, including:
	+ browser
	+ email
	+ web authoring
	+ scripting
* software requirements for a PAN or home network, including:
	+ browser
	+ plugin
	+ internet connectivity software
* effect of bandwidth availability on network functionality
* features of a network, including the ability to share:
	+ files
	+ peripheral devices
	+ an internet connection
	+ storage devices
* the role of an internet service provider in a PAN or home network
 | **Networks** **and** **communications*** use Bluetooth to create a simple personal network
* use communication software to upload files to a web server
* analyse the suitability of a PAN or a home network solution
* connect common peripheral devices
* create and administer a simple peer-to-peer network to:
	+ share files
	+ share peripheral devices (printer, scanner)
	+ share internet connection
 |