**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 |