



## SAMPLE COURSE OUTLINE

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**COMPUTER SCIENCE**  
**GENERAL YEAR 11**

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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	<p><b>Introduction</b></p> <ul style="list-style-type: none"> <li>overview of Unit 1</li> <li>assessment requirements</li> <li>student computer use policy</li> </ul> <p><b>Managing data</b></p> <ul style="list-style-type: none"> <li>data management techniques for personal computer use, including hierarchical storage of data using files and folders</li> <li>issues related to ethics in the storage of personal data</li> <li>features of word processing software, including common formatting functions</li> </ul> <p><b>Systems analysis and development</b></p> <ul style="list-style-type: none"> <li>types of computer systems, including: <ul style="list-style-type: none"> <li>mobile</li> <li>desktop</li> <li>server</li> </ul> </li> </ul>	<p><b>Managing data</b></p> <ul style="list-style-type: none"> <li>apply hierarchical file management techniques for personal computer use</li> <li>use word processing software</li> </ul>
3–5	<p><b>Systems analysis and development</b></p> <ul style="list-style-type: none"> <li>functions of computer hardware components, including: <ul style="list-style-type: none"> <li>input <ul style="list-style-type: none"> <li>keyboard</li> <li>mouse</li> <li>microphone</li> <li>digital camera/web cam</li> <li>scanner</li> </ul> </li> <li>processing <ul style="list-style-type: none"> <li>central processing unit (CPU)</li> <li>control unit (CU)</li> <li>arithmetic logic unit (ALU)</li> <li>registers</li> </ul> </li> <li>primary storage <ul style="list-style-type: none"> <li>random access memory (RAM)</li> <li>read only memory (ROM)</li> </ul> </li> <li>secondary storage <ul style="list-style-type: none"> <li>mechanical drive</li> <li>solid state drive</li> <li>online</li> </ul> </li> <li>output <ul style="list-style-type: none"> <li>monitor</li> <li>printer</li> <li>speaker/headphones</li> </ul> </li> </ul> <li>how user wants influence the choice, use and creation of personal computer systems</li> </li></ul>	<p><b>Systems analysis and development</b></p> <ul style="list-style-type: none"> <li>connect peripheral devices to a computer system using: <ul style="list-style-type: none"> <li>ports <ul style="list-style-type: none"> <li>universal serial bus (USB)</li> <li>Firewire</li> <li>PS2</li> <li>ethernet</li> <li>serial</li> </ul> </li> </ul> <li>install simple software</li> </li></ul>
6–8	<p><b>Systems analysis and development</b></p> <ul style="list-style-type: none"> <li>the role of an operating system</li> </ul>	<p><b>Systems analysis and development</b></p> <ul style="list-style-type: none"> <li>install simple software</li> </ul>

Week	Syllabus Content	
	Knowledge	Skills
	<ul style="list-style-type: none"> <li>• types of hardware booting processes <ul style="list-style-type: none"> <li>▪ cold</li> <li>▪ warm</li> <li>▪ hot</li> </ul> </li> <li>• types of basic maintenance strategies and computer protection software, including: <ul style="list-style-type: none"> <li>▪ defragmentation</li> <li>▪ error check</li> <li>▪ disk clean</li> <li>▪ back up</li> <li>▪ anti-malware</li> </ul> </li> <li>• basic maintenance strategies and techniques to rectify simple computer difficulties, including: <ul style="list-style-type: none"> <li>▪ diagnosis of fault</li> <li>▪ implementation of a solution</li> <li>▪ description of process</li> </ul> </li> <li>• purpose of the systems development life cycle (SDLC)</li> <li>• flow of data through an information system <ul style="list-style-type: none"> <li>▪ input</li> <li>▪ processing</li> <li>▪ storage</li> <li>▪ output</li> </ul> </li> <li>• stages of the SDLC <ul style="list-style-type: none"> <li>▪ preliminary analysis</li> <li>▪ analysis</li> <li>▪ design</li> <li>▪ development</li> <li>▪ implementation</li> <li>▪ evaluation and maintenance</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• apply the following hardware booting processes <ul style="list-style-type: none"> <li>▪ cold</li> <li>▪ warm</li> <li>▪ hot</li> </ul> </li> <li>• apply basic maintenance strategies and computer protection software</li> <li>• apply basic care and handling of hardware equipment measures to ensure personal safety and appropriate use of components</li> <li>• apply basic maintenance strategies and techniques to rectify simple computer difficulties</li> </ul>
9–11	<p><b>Managing data</b></p> <ul style="list-style-type: none"> <li>• features of spreadsheet software, including: <ul style="list-style-type: none"> <li>▪ simple functions (sum, average, min and max)</li> <li>▪ simple formulae (addition, subtraction, multiplication and division)</li> </ul> </li> </ul>	<p><b>Managing data</b></p> <ul style="list-style-type: none"> <li>• use spreadsheet software</li> </ul>
12–15	<p><b>Managing data</b></p> <ul style="list-style-type: none"> <li>• features of database software, including: <ul style="list-style-type: none"> <li>▪ components of a single table database (field, record, file)</li> <li>▪ data entry forms</li> <li>▪ simple search techniques</li> <li>▪ create a simple query</li> <li>▪ simple data types (number, text, Boolean, date, currency)</li> </ul> </li> </ul>	<p><b>Managing data</b></p> <ul style="list-style-type: none"> <li>• use database software</li> </ul>

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

Week	Syllabus content	
	Knowledge	Skills
1–2	<p><b>Introduction</b></p> <ul style="list-style-type: none"> <li>• review of Unit 1</li> <li>• overview of Unit 2</li> </ul> <p><b>Developing software</b></p> <ul style="list-style-type: none"> <li>• hardware and software systems used in personal computing (applications, operating systems)</li> <li>• the roles of hardware, software and the user in a computer system</li> <li>• interrelationship between users, hardware and software in a personal computer system</li> </ul>	
3–5	<p><b>Developing software</b></p> <ul style="list-style-type: none"> <li>• the purpose of the software development cycle (SDC)</li> <li>• stages of the SDC <ul style="list-style-type: none"> <li>▪ state the problem</li> <li>▪ plan and design</li> <li>▪ develop the solution</li> <li>▪ test the solution</li> <li>▪ evaluate the solution</li> </ul> </li> <li>• requirements for software licensing, including: <ul style="list-style-type: none"> <li>▪ single user</li> <li>▪ site licence</li> </ul> </li> <li>• ethical and legal issues associated with software, including: <ul style="list-style-type: none"> <li>▪ copyright</li> <li>▪ piracy</li> </ul> </li> <li>• comparison of website construction tools</li> </ul>	<p><b>Developing software</b></p> <ul style="list-style-type: none"> <li>• modify an existing simple software solution</li> <li>• develop simple software solutions using the SDC</li> </ul>
6–9	<p><b>Programming</b></p> <ul style="list-style-type: none"> <li>• the components of a computer program <ul style="list-style-type: none"> <li>▪ inputs</li> <li>▪ processing</li> <li>▪ outputs</li> </ul> </li> <li>• control structures <ul style="list-style-type: none"> <li>▪ sequence</li> <li>▪ selection</li> <li>▪ iteration</li> </ul> </li> <li>• the concepts of variables and data types, including: <ul style="list-style-type: none"> <li>▪ integer</li> <li>▪ real</li> <li>▪ character</li> <li>▪ string</li> </ul> </li> </ul>	<p><b>Programming</b></p> <ul style="list-style-type: none"> <li>• use variables, data types, control structures and a simple programming language to develop a software solution</li> <li>• use web tools to create linked web pages</li> </ul>

Week	Syllabus content	
	Knowledge	Skills
10–11	<p><b>Networks and communications</b></p> <ul style="list-style-type: none"> <li>• key concepts, terminology and functions of common network components <ul style="list-style-type: none"> <li>▪ data transmission rates <ul style="list-style-type: none"> <li>○ megabits per second (Mbps)</li> <li>○ gigabits per second (Gbps)</li> </ul> </li> <li>▪ wired data transmission media <ul style="list-style-type: none"> <li>○ twisted pair</li> <li>○ fibre optic</li> </ul> </li> <li>▪ wireless transmission</li> </ul> </li> <li>• hardware components required for a personal area network (PAN) or home network, including: <ul style="list-style-type: none"> <li>▪ modem</li> <li>▪ router</li> <li>▪ wireless access point</li> <li>▪ firewall</li> </ul> </li> <li>• concept of internet protocols, including: <ul style="list-style-type: none"> <li>▪ hypertext transfer protocol (HTTP)</li> <li>▪ hypertext transfer protocol secure (HTTPS)</li> <li>▪ file transfer protocol (FTP)</li> </ul> </li> <li>• methods to ensure reliability of internet data for personal use</li> <li>• measures an individual can take to help maintain data privacy and security</li> <li>• the role of users in maintaining the security of information transmitted through communication systems</li> </ul>	
12–15	<p><b>Networks and communications</b></p> <ul style="list-style-type: none"> <li>• types of communication software, including: <ul style="list-style-type: none"> <li>▪ browser</li> <li>▪ email</li> <li>▪ web authoring</li> <li>▪ scripting</li> </ul> </li> <li>• software requirements for a PAN or home network, including: <ul style="list-style-type: none"> <li>▪ browser</li> <li>▪ plugin</li> <li>▪ internet connectivity software</li> </ul> </li> <li>• effect of bandwidth availability on network functionality</li> <li>• features of a network, including the ability to share: <ul style="list-style-type: none"> <li>▪ files</li> <li>▪ peripheral devices</li> <li>▪ an internet connection</li> <li>▪ storage devices</li> </ul> </li> <li>• the role of an internet service provider in a PAN or home network</li> </ul>	<p><b>Networks and communications</b></p> <ul style="list-style-type: none"> <li>• use Bluetooth to create a simple personal network</li> <li>• use communication software to upload files to a web server</li> <li>• analyse the suitability of a PAN or a home network solution</li> <li>• connect common peripheral devices</li> <li>• create and administer a simple peer-to-peer network to: <ul style="list-style-type: none"> <li>▪ share files</li> <li>▪ share peripheral devices (printer, scanner)</li> <li>▪ share internet connection</li> </ul> </li> </ul>