

Course outline - Computer Science General – Year 11

Semester One - Unit 1 – Personal use of computer systems

Week	Key teaching points		
	Knowledge	Skills	Assessments
1–2	<p>Introduction</p> <ul style="list-style-type: none"> • overview of Unit 1 • assessment requirements • student computer use policy <p>Managing data</p> <ul style="list-style-type: none"> • 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 <p>Systems analysis and development</p> <ul style="list-style-type: none"> • types of computer systems, including: <ul style="list-style-type: none"> ▪ mobile ▪ desktop ▪ server 	<p>Managing data</p> <ul style="list-style-type: none"> • apply hierarchical file management techniques for personal computer use • use word processing software 	
3–5	<p>Systems analysis and development</p> <ul style="list-style-type: none"> • functions of computer hardware components, including: <ul style="list-style-type: none"> ▪ input <ul style="list-style-type: none"> ○ keyboard ○ mouse ○ microphone ○ digital camera/web cam ○ scanner ▪ processing <ul style="list-style-type: none"> ○ central processing unit (CPU) ○ control unit (CU) ○ arithmetic logic unit (ALU) ○ registers ▪ primary storage <ul style="list-style-type: none"> ○ random access memory (RAM) ○ read only memory (ROM) ▪ secondary storage <ul style="list-style-type: none"> ○ mechanical drive ○ solid state drive ○ online ▪ output <ul style="list-style-type: none"> ○ monitor ○ printer ○ speaker/headphones • how user wants influence the choice, use and creation of personal computer systems 	<p>Systems analysis and development</p> <ul style="list-style-type: none"> • connect peripheral devices to a computer system using: <ul style="list-style-type: none"> ▪ ports <ul style="list-style-type: none"> ▪ universal serial bus (USB) ▪ Firewire ▪ PS2 ▪ ethernet ▪ serial • install simple software 	

6	<p>Systems analysis and development</p> <ul style="list-style-type: none"> • the role of an operating system • types of hardware booting processes <ul style="list-style-type: none"> ▪ cold ▪ warm ▪ hot • types of basic maintenance strategies and computer protection software, including: <ul style="list-style-type: none"> ▪ defragmentation ▪ error check ▪ disk clean ▪ back up ▪ anti-malware • basic maintenance strategies and techniques to rectify simple computer difficulties, including: <ul style="list-style-type: none"> ▪ 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 <ul style="list-style-type: none"> ▪ input ▪ processing ▪ storage ▪ output • stages of the SDLC <ul style="list-style-type: none"> ▪ preliminary analysis ▪ analysis ▪ design ▪ development ▪ implementation ▪ evaluation and maintenance 	<p>Systems analysis and development</p> <ul style="list-style-type: none"> • install simple software • apply the following hardware booting processes <ul style="list-style-type: none"> ▪ cold ▪ warm ▪ hot • 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 	<p>Term1- Week 6 Task 1: Theory-Test 1 A series of short answer and extended questions based upon System Analysis and Development</p>
End of Term 1 7-9	<p>Managing data</p> <ul style="list-style-type: none"> • features of spreadsheet software, including: <ul style="list-style-type: none"> ▪ simple functions (sum, average, min and max) ▪ simple formulae (addition, subtraction, multiplication and division) 	<p>Managing data</p> <ul style="list-style-type: none"> • use spreadsheet software 	<p>Term1- Week 9 Task 2: Project 1 (investigation) - Spreadsheet Create a spreadsheet workbook based upon a given scenario Task 3: Practical (Validation) -Test 1 Spreadsheet</p>
EASTER BREAK			
Term 2 Begins 10-13	<p>Managing data</p> <ul style="list-style-type: none"> • features of database software, including: <ul style="list-style-type: none"> ▪ 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) 	<p>Managing data</p> <ul style="list-style-type: none"> • use database software 	<p>Term 2- Week 3 Task 4: Theory-Test 2 A series of short answer and extended questions based upon Managing Data Task 5: Project 2 - Database Create a simple relational database based upon a given scenario Term 2- Week 4 Task 6: Practical-Test 2 Database</p>

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

Week	Key teaching points		
	Knowledge	Skills	Assessments
1-5	<p>Programming</p> <ul style="list-style-type: none"> the components of a computer program <ul style="list-style-type: none"> inputs processing outputs control structures <ul style="list-style-type: none"> sequence selection iteration the concepts of variables and data types, including: <ul style="list-style-type: none"> integer real character string 	<p>Programming</p> <ul style="list-style-type: none"> use variables, data types, control structures and a simple programming language to develop a software solution use web tools to create linked web pages 	<p>Task 7: Practical-Test 3 Grok Learning - Intro to Python Programming</p>
WINTER BREAK			
<p>Term 3 Begins 6-9</p>	<p>Introduction</p> <ul style="list-style-type: none"> overview of Unit 2 review of Unit 1 <p>Programming</p> <ul style="list-style-type: none"> the components of a computer program <ul style="list-style-type: none"> inputs processing outputs control structures <ul style="list-style-type: none"> sequence selection iteration the concepts of variables and data types, including: <ul style="list-style-type: none"> integer real character string 	<p>Programming</p> <ul style="list-style-type: none"> use variables, data types, control structures and a simple programming language to develop a software solution use web tools to create linked web pages 	<p>Task 7 Due Term 3 Week 4</p>
10-11	<p>Networks and communications</p> <ul style="list-style-type: none"> key concepts, terminology and functions of common network components <ul style="list-style-type: none"> data transmission rates <ul style="list-style-type: none"> megabits per second (Mbps) gigabits per second (Gbps) wired data transmission media <ul style="list-style-type: none"> twisted pair fibre optic 		

	<ul style="list-style-type: none"> ▪ wireless transmission • hardware components required for a personal area network (PAN) or home network, including: <ul style="list-style-type: none"> ▪ modem ▪ router ▪ wireless access point ▪ firewall • concept of internet protocols, including: <ul style="list-style-type: none"> ▪ 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 		
12–16	<p>Networks and communications</p> <ul style="list-style-type: none"> • types of communication software, including: <ul style="list-style-type: none"> ▪ browser ▪ email ▪ web authoring ▪ scripting • software requirements for a PAN or home network, including: <ul style="list-style-type: none"> ▪ browser ▪ plugin ▪ internet connectivity software • effect of bandwidth availability on network functionality • features of a network, including the ability to share: <ul style="list-style-type: none"> ▪ files ▪ peripheral devices ▪ an internet connection ▪ storage devices • the role of an internet service provider in a PAN or home network 	<p>Networks and communications</p> <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> ▪ share files ▪ share peripheral devices (printer, scanner) ▪ share internet connection 	<p>Task 8: Theory-Test 4</p> <p>A series of short answer and extended questions based upon Networks and Communications</p>
SPRING BREAK			
Term 4 Begins 1-6	<p>Developing software</p> <ul style="list-style-type: none"> • 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 		<p>Term 4 Week 6</p> <p>Task 9: Project 3 - Programming</p> <p>Follow SDC to create an Arcade Game based upon a given scenario</p>
	<p>Developing software</p> <ul style="list-style-type: none"> • the purpose of the software development cycle (SDC) • stages of the SDC <ul style="list-style-type: none"> ▪ state the problem ▪ plan and design ▪ develop the solution ▪ test the solution ▪ evaluate the solution • requirements for software licensing, including: <ul style="list-style-type: none"> ▪ single user ▪ site licence • ethical and legal issues associated with software, including: <ul style="list-style-type: none"> ▪ copyright ▪ piracy ▪ comparison of website construction tools 	<p>Developing software</p> <ul style="list-style-type: none"> • modify an existing simple software solution • develop simple software solutions using the SDC 	<p>Task 10: Theory-Test 3</p> <p>A series of short answer and extended questions based upon Developing Software</p>
	No Exam		