Week	Theory Lessons	Flipped learning Homework	Programming Project Lesson Number	Programming Project (To be completed by student)
1.4 Wired and Wireless Networks **1.5 Network topologies, protocols and layers**		**Design/Development**		
07/09/2020	Types of Networks: LAN (Local Area Network) WAN (Wide Area Network) Factors that affect the performance of networks The different roles of computers in a client-server and a peer-to-peer network	2.1 Abstraction, Decomposition (Revisit)		Pre-testing table
14/09/2020	The hardware needed to connect stand-alone computers into a Local Area Network: Wireless access points Routers/switches NIC (Network Interface Controller/Card) Transmission media Topologies- Star, Mesh- Draw, Describe, Advantages and Disadvantages	2.1 Algorithmic thinking (Revisit)	**10**	Variables, constants and data structures.
21/09/2020	The internet as a worldwide collection of computer networks: DNS (Domain Name Server) Packet switching Hosting The cloud The concept of virtual networks.	2.1 Algorithms- Search and Sort Algorithms	**11**	Validation of user input; why? How could the program be using in the real world.
28/09/2020	Wifi: Frequency and channels Encryption Ethernet	2.1 Algorithms- Search and Sort Algorithms	**12**	Programming
05/10/2020	The uses of IP addressing, MAC addressing, and protocols including: • TCP/IP (Transmission Control Protocol/Internet Protocol) • HTTP (Hyper Text Transfer Protocol) The concept of layers -TCP/IP Model • HTTPS (Hyper Text Transfer Protocol Secure) • FTP (File Transfer Protocol) • POP (Post Office Protocol) • IMAP (Internet Message Access Protocol) • SMTP (Simple Mail Transfer Protocol)	2.3 Defensive design: input sanitisation/validation, planning for contingencies, anticipating misuse and authentication	**13**	Programming
12/10/2020	Assessment	2.3 Maintainability. Comments, indentation, layout, variable names	**14**	Programming
19/10/2020	Think Pink Go Green	2.3 Purpose of Testing, Test plan	**15**	Programming
26/10/2020 02/11/2020	**Half Term**			
	1.6 System Security			
09/11/2020	Forms of attack Threats posed to networks: Malware Phishing People as the 'weak point' in secure systems (social engineering)	2.3 Iterative testing: Normal, extreme and invalid test data	**16**	Programming
11/11/2019	Brute force attacks Denial of service attacks DDOS Data interception and theft The concept of SQL injection Poor network policy	2.3 Syntax and logic errors	**17**	Programming
18/11/2019	**PPE1**			
25/11/2019				
02/12/2019	Think Pink Go Green		**18**	Testing
09/12/2019	Identifying and preventing vulnerabilities: Penetration testing Network forensics Network policies Anti-malware software	2.4 Computational Logic: Logic Gates- writing expressions	**19**	Evaluation against success criteria. What went right/ wrong and how it can be fixed.
16/12/2019	Firewalls User access levels Passwords Encryption.	2.5 Characteristics of different levels of programming language, Translators and characteristics of types of translators IDE common tools and facilities	**20**	Evaluation against success criteria. What went right/ wrong and how it can be fixed.
23/12/2019 30/12/2019	**Christmas Holiday**			
	2.3 Programming Techniques	**1.8 Ethical, legal, cultural and environmental concerns**		
06/01/2020	Pseudocode -variables, constants, operators, inputs, outputs and assignments	1.8 Issues: Ethical and Legal		
13/01/2020	Pseudocode- Basic String Manipulation	1.8 Issues:C reative Commons, Key stakeholder considerations		
20/01/2020	Pseudocode -Selection	1.8 Issues: Evironmental and Cultural Issues		
27/01/2020	Pseudocode --Loops-For, While	1.8 Legal Issues & relevant laws (open vs proprietary software)		
03/02/2020	Pseudocode -Arrays	1.7 Software -Definition of System Software, OS -User Interface		
10/02/2020	Pseudocode -Functions, Subprogram, Subprocedure	1.7 Software - OS - Management		
17/02/2020	**February Half Term**			

24/02/2020	Pseudocode -Functions, Subprogram, Subprocedure	1.7 Software - Utility - Common types
02/03/2020	Pseudocode -**File handling**	**Revision**
09/03/2020	Programming Techniques: File Handling-Reading and Writing to files	1.1 System Architecture
16/03/2020	SQL statements	1.2 Memory
23/03/2020		1.3 Storage Devices
30/03/2020	PPE2	
06/04/2020	**Easter Holiday**	
13/04/2020		
	Data Representation	**Revision**
20/04/2020	2.5 Data Representation - Units / Numbers Measurement of data, conversion of Denary/Binary/Hex	1.4 Network
27/04/2020	Data Representation - Text Character sets, limitations, types (ASCII) conversion.	1.5 Network
04/05/2020	Data Representation - Images :Bitmap images, resolution (Quality), colour depth.	1.6 System Security
11/05/2020	Data Representation - Sound : Analogue to digital, sample rate, etc.	1.7 Software System
18/05/2020	Data Representation - Compression: Lossy vs Lossless, types, file extensions.	1.8 Issues: Ethical and Legal