COMPUTER SCIENCE TERM BY TERM CURRICULUM

Specification link - A level Computer Science

September 2024

YEAR 12

TERM	Teacher 1 1x triple lesson (programming) 1x double lesson (theory)		Teacher 2 1x double lesson (programming) 1x double lesson (theory)	
1	Theory	Programming	Theory	Programming
	• 4.5.4 Binary Number System (floating Point only) • 4.5.6 Representing images, sound and other data ASSESSMENT: 4.5 Exam Questions	• Object Oriented Paradigm ASSESSMENT: Clock Project • Graphical User Interfaces ASSESSMENT: Graphical Stopwatch	• 4.5.1 Number systems • 4.5.2 Number bases • 4.5.3 Units of information • 4.5.4 Binary number system • 4.5.5 Information coding systems	• Support with Clock and Stopwatch projects
2	• 4.7.1 Internal hardware components of a computer • 4.7.2 The stored program concept • 4.7.3 Structure and role of the processor and its components	• Encapsulation and Class Structure ASSESSMENT: Os and Xs Game	• 4.6.1 Hardware and software • 4.6.2 Classification of programming languages • 4.6.3Types of translator • 4.6.4 Logic gates • 4.6.5 Boolean Algebra • 4.10.1 Conceptual data models • 4.10.2 Entity relationship modelling	• Support with Os and Xs project

3	• 4.7.4 External hardware devices ASSESMENT: 4.6, 4.7 Exam questions	• Real-time animation ASSESSMENT: Bouncing Ball	• 4.10.3 Database design and normalisation techniques • 4.10.4 Structured Query Language (SQL) • 4.10.5 Client server databases ASSESSMENT: 4.10 Exam Questions	• Support with Bouncing Ball project
4	• 4.9.1 Communication 4.9.2 Networking • 4.9.3 The Internet • 4.9.4 TCP/IP ASSESSMENT: 4.9 Exam Questions	• File and error handling ASSESSMENT: Pac-Man	• 4.8.1 Individual (moral), social (ethical), legal and cultural issues and opportunities ASSESSMENT: 4.8 Exam Questions	• Support with Pacman Project
5	• Mock Preparation ASSESSMENT: Mock	• NEA research and decisions	• Protocol (TCP/IP) protocol • Mock Preparation	• Console OOP • Monster
6	• Mock Response and improvements	• Paper 1 preparation ASSESSMENT: Hangman Pre-release	• Mock Response and improvements	• NEA: Proposal • NEA: Analysis

YEAR 13

TERM	Teacher 1 1x triple lesson (NEA) 1x double lesson (theory) 1x double lesson (preliminary material)		Teacher 2 1x double lesson	
1	Theory	Programming	Theory	Programming
	• 4.2.1 Data structures • 4.2.2 Queues • 4.2.3 Stacks • 4.2.4 Graphs • 4.2.5 Trees • 4.2.6 Hash tables • 4.2.7 Dictionaries • 4.2.8 Vectors • 4.3.1 Graph-traversal • 4.3.2 Tree-traversal • 4.3.3 Reverse Polish Notation	• Previous year's skeleton program study	• Creation of Project	• 4.11.1 Big Data ASSESSMENT: 4.11 Exam Questions
2	• 4.3.4 Searching algorithms • 4.3.5 Sorting algorithms • 4.3.6 Optimisation algorithms ASSESSMENT: 4.2,4.3 Exam Questions • 4.4.1 Abstraction and automation • 4.4.2 Regular languages (FSM, RegEx)	• Previous year's skeleton program study ASSESSMENT: Previous Year's Paper 1 • Study Skeleton Program	• Creation of Project • SUBMIT PROJECT	• 4.12.1 Functional programming paradigm ASSESSMENT: 4.12 Exam Questions
3	• 4.4.3 Context-free languages (BNF) • 4.4.4 Classification of algorithms • 4.4.5 A model of computation (Turing Machine) ASSESSMENT: 4.4 Exam Questions	• Study Skeleton Program	• Report: Design • Report: UML Diagram • Report: Algorithms	• Study Skeleton Program

4	• Re-visiting of weaker topics	• Study Skeleton Program	• Report: Technical Solution • Report: Testing • Report: Evaluation • SUBMIT NEA	• Theory Revision / Study Skeleton Program
5	Revision			