	Content	
	Programming	**Theory**
Y12 Autumn Term	**2.1 Elements of computational thinking** **2.2.1 Programming techniques** Programming constructs Global and local variables **1.4.1 Data Types** Binary, hexadecimal, floating point and bitwise Practical programming	**1.1.1 Structure and function of the processor** **1.1.2 Types of processor** **1.1.3 Input, output and storage**
Y12 Spring Term	**2.3.1 Algorithms** Big O notation Standard sorting and searching algorithms **2.2.2 Computational methods** **1.4.3 Boolean Algebra** Logic, karnaugh maps, simplification rules, adders and flip flops	**1.2.1 Systems Software** **1.2.2 Applications Generation** **1.2.3 Software Development** **1.2.4 Types of Programming language** Assembly language Modes of addressing memory
Y12 Summer Term	**2.2.1 Programming techniques** Recursion Passing via value and reference Using an IDE **2.3.1 Algorithms** Algorithms for main data structures **1.4.2 Data Structures** Linked lists, graphs and trees. **1.3.4 Web Technologies** HTML, CSS, search engines Project proposals	**1.3.1 Compression, Encryption and Hashing** **1.3.2 Databases** Relational, flat file, primary, foreign and secondary keys, ERM, normalisation and indexing Methods of capturing, selecting, managing and exchanging data SQL Referential Integrity Transaction processing, ACID **1.3.2 Databases** Normalisation to 3NF
Y13 Autumn Term	**2.2.1 Programming techniques** Object oriented programming **3.2 Design of the solution** **3.3 Developing the solution**	**1.3.3 Networks** **1.5.1 Computing Related legislation** **1.5.2 Moral and ethical issues**
Y13 Spring Term	**3.3 Developing the solution** **3.4 Evaluation** **2.2.2 Computational methods** Backtracking, data mining, heuristics, pipeline performance, visualisation	**3.3 Developing the solution** **1.5.2 Moral and ethical issues**