Curriculum Subject: Computer Science KS5

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
YEAR 12	**Components of a Computer**	**Systems Software & Programming Techniques**	**Data Types**	**Boolean Algebra**	**Data Structures & Algorithms**	**Programming Project**
	• Structure and function of the processor • Types of processor • Input, output and storage	• Systems software • Application generation • Software Development • Types of programming language	• Data types • Binary • Negative numbers • Binary arithmetic • Hexadecimal • Floating point binary • Bitwise manipulation and masks • Character sets	• Boolean logic • Manipulating Boolean expressions • Boolean algebra • Logic gates	• Data structures • Algorithm analysis and design • Algorithm suitability • Big O notation • Algorithm complexity • Algorithms for data structures • Standard algorithms	• Introduction to the programming project • Project - analysis of the problem
YEAR 13	**Programming Project & Software Development**	**Programming Project & Exchanging Data**	**Programming Project & Networks & Web Technologies**	**Programming Project & Advanced Algorithms**	**Legal, Moral, Ethical and Cultural Issues**	**External exams**
	• Project - design of the solution • Software development models and methods • Writing and following algorithms • Programming paradigms • Procedural languages • Assembly language (LMC) • Memory addressing • Object-Oriented languages	• Project – developing the solution • Compression, encryption and hashing • Databases	• Project – developing the solution • Characteristics of networks • The internet • Security • Hardware • HTML, CSS and JavaScript • Search engines • PageRank Algorithms • Client/server side processing	• Project – Evaluation • Algorithms for data structures • Standard algorithms	• Computing related legislation • Moral and ethical issues	

St Bede's Curriculum Design Principles

Within subjects: depth, relevance, sequencing, spacing

Between subjects: breadth, cultural capital, coherence, progression, interlinking