

## Curriculum Map

Autumn Term Year 12

	Topic	Further details about the topic	Skills
1	General theory	Programming and data representation	Fundamentals of programming (using Python)
			Object-oriented programming theory and practice (classes, objects, inheritance...)
			Fundamentals of data structures (arrays, files, abstract data types...)
			Algorithms (searching, sorting, tree traversals, shortest path...)
			Theory of computation (Abstraction, automation, meta-languages, Turing machine...)
2	General theory	Programming and data representation	Advanced programming in Python C#
Spring Term			
1	General theory	Programming and data representation	Advanced programming in Python
2	General theory	Programming and data representation	Advanced programming in Python
Summer Term			
1	Practical project	Design, code and test your own system	Programming and project design
2	Practical project	Design, code and test your own system	Programming and project design

Autumn Term Year 13

	Topic	Further details about the topic	Skills
Autumn Term			
1	Project	Design, code and test your own system	Learn and use formal analysis techniques: interview; observation; record keeping; DFDs; ERDs; data dictionaries, etc.
2	Project	Design, code and test your own system	Developing structured programmes. Use top-down/bottom-up design; use modules; structure charts, etc.
Spring Term			
1		Computing theory	Data representation (Number systems, image, sound and other data...)
			Fundamentals of computer systems (Hardware, software, instructions...)
			Computer organisation and architecture (Internal components, CPU operation...)
			Consequences of use of computing (Laws, ethics, consequences...)
			Communication and networking (LAN, WAN, protocols, client-server...)
			Database design and SQL (designing databases and using SQL)
			Big Data. Managing large volumes/sizes of data
2			Functional Programming (Understanding and writing functional programs.
Summer Term			Revision