

KS5 Computing ICT

<p><u>What will students learn/what skills will they develop?</u></p> <p><b>YEAR 12</b></p> <p>Unit 1 (exam)</p> <ul style="list-style-type: none"> <li>• Develop the knowledge the processes of computation and understanding why and where they are important in Computing</li> <li>• Develop skills to Express the solution to a simple problem as an algorithm using flowcharts, pseudo-code or structured English and using formal diagrams</li> <li>• Develop knowledge and skill in programming using the Python programming language.</li> <li>• Develop knowledge of the structured approach to program design and construction</li> <li>• Develop knowledge of binary and denary numbers</li> <li>• Develop knowledge of the the stages of development of a Systems life cycle</li> </ul> <p>Unit 2 (exam)</p> <ul style="list-style-type: none"> <li>• Develop knowledge of relationship between hardware and software</li> <li>• Develop understanding of software and application software</li> <li>• Develop understanding of machine-code language and assembly language</li> <li>• Develop knowledge of Logic gates and develop skills in designing logic gates.</li> <li>• Develop knowledge of Boolean Algebra and develop skills to manipulate and simplify simple Boolean expressions</li> <li>• Develop understating of the Functional Characteristics of a Processor</li> <li>• Develop Understanding of the structure of the Internet, the role of packet switching and routers</li> <li>• Develop skill in creating simple web pages containing hyperlinks</li> </ul>	<p><u>What will students learn/what skills will they develop?</u></p> <p><b>YEAR 13</b></p> <p>Unit 3 (exam)</p> <ul style="list-style-type: none"> <li>• Develop the understating of the concept of abstraction as the modelling of a complex system             <ul style="list-style-type: none"> <li>• Develop knowledge of software and hardware present limitations to solving problems</li> <li>• Develop knowledge of the abstract model of the Turing Machine and the Universal Machine</li> <li>• Develop skills of drawing and interpreting state transition diagrams for finite state machines</li> <li>• Develop understanding of the need for and characteristics of a variety of programming paradigms</li> <li>• Develop practical skills of programming using objects to model a simple Problem and develop knowledge of simulations as a computer program or network of computers</li> <li>• Develop skill in using SQL to retrieve, update, insert and delete data from several tables in a relational database</li> </ul> </li> </ul> <p>Unit 4 (Coursework)</p> <ul style="list-style-type: none"> <li>• Develop skill in identifying requirements for a computer-based solution to a problem</li> <li>• Develop skills in representing user requirements using suitable diagrams</li> <li>• Develop knowledge of prototyping on the design and development process</li> <li>• Develop skill in creating suitable Human Computer Interfaces</li> <li>• Develop skill in carrying out suitable test strategies</li> <li>• Develop skill in evaluating methods and solutions against the specification and on the basis of effectiveness, usability and maintainability</li> </ul>
<p><b>Assessment</b></p> <p>Unit 1 has a 2 hour onscreen exam and counts towards 30% of A-Level. Unit 2 is assessed by a one hour written exam and counts towards 20 % of the A-Level. Unit 3 is assessed by a 2 ½ hour exam and counts towards 30% of the A-Level. Unit 4 is internally assessed and counts towards 20% of the A-Level. Pupils will also be assessed on their submitted class work and pupils will evaluate their work and respond to feedback.</p>	<p><b>Numeracy</b></p> <p>Develop knowledge of binary and denary representation Use Boolean Algebra</p>
<p><b>Literacy</b></p> <p>Key terms are taught explicitly Pupils provide oral and written evaluation of their work Reading comprehension Research</p>	<p><b>SMSC</b></p> <p>Develop knowledge of issues of ownership of information and programs, and the protection of data. Understand the social consequences of current uses of computing. Be aware of emerging technologies and appreciate their potential impact on society. Consider how digital rights can be managed</p>