COMPUTER SCIENCE

Computers are now widely used in all aspects of government, business, industry, education, leisure and the home. In this increasingly technological age, a study of Computing, and particularly how computers are used in the solution of a variety of problems, is not only valuable to the students themselves, but also essential to the future well being of the country.

It is recognised that Computing has a great deal to offer. It integrates well with subjects across the curriculum. It demands logical discipline and imaginative creativity. It encourages an awareness of the management and organisation of computer systems; it extends students' horizons beyond the school environment in the appreciation of the effects of computer applications on society and individuals.

SUMMARY OF ASSESSMENT
AS (2 units)

Unit 1 – Fundamentals of Computer Science **Written Examination: 2 hours (25% of qualification)**
This unit investigates computer architecture, communication, data representation, data structures, software applications, programs, algorithms, logic, programming methodologies and the impact of computer science on society.
Unit 2 – Practical Programming to Solve Problems **On-screen Examination: 2 hours (15% of qualification)**
This unit consists of a series of set tasks completed on-screen by candidates. These tasks will assess the practical application of knowledge and understanding and will require the use of Visual Basic.NET, Python or Java as a programming language.

A Level (the above plus a further 3 units)

Unit 3 – Programming and System Development **Written Examination: 2 hours (20% of qualification)**
This unit investigates programs, data structures, algorithms, logic, programming methodologies and the impact of computer science on society.
Unit 4 – Computer Architecture, Data, Communicating and Applications **Written Examination: 2 hours (20% of qualification)**
This unit investigates computer architecture, communication, data representation, organisation and structure of data, programs, algorithms and software applications.
Unit 5 – Programmed Solution to a Problem **Non-exam Assessment: Coursework (20% of qualification)**
Candidates discuss, investigate, design, prototype, refine and implement, test and evaluate a computerised solution to a problem which must be solved using original code (programming). This is a substantial piece of work, undertaken over an extended period of time.

ICT

ICT is a subject that requires candidates to consider individual, moral, ethical, social, cultural and contemporary issues. The specification provides a framework for exploration of such issues and includes specific content to address these issues. ICT is about the application of skills, knowledge and understanding.

Specifically, the course encourages candidates to develop:

- the ability to apply skills, knowledge and understanding of ICT in a range of contexts to solve problems;
- an understanding of the consequences of using ICT on individuals, organisations and society an of social, legal, ethical and other considerations on the use of ICT;
- an awareness of emerging technologies and an appreciation of the potential impact these may have on individuals, organisations and society.

SCHEME OF ASSESSMENT

IT1	**Written Paper - 24% (2 hours 15 mins) - 80 marks (120 UMS)** This paper assesses knowledge and understanding of Information Systems. Topics covered include: • Data, information and knowledge, validation and verification • Uses of ICT— Home, Business, Health, Education, Internet of Things and Robotics • HCI's, Networks, Social Issues • Simulation Modelling
IT2	**Coursework - 16% - 80 marks (80 UMS)** Candidates undertake Multimedia tasks, presenting the outcome for internal assessment and moderation by WJEC. Tasks include three elements. Firstly, candidates produce either a leaflet or newsletter. Secondly, use automated routines, such as a mail merged letter. Thirdly, a presentation to an audience.
IT3	**Written Paper - 36% - (2 hours 30 mins) - 90 marks (180 UMS)** A written paper of two sections, A and B. Candidates answer all questions in Section A and one from two in Section B. Topics covered include: • Networks, HCI's • The Internet, Security • Management Information Systems • System Development Life Cycle
IT4	**Coursework - 24% - 100 marks (80 UMS)** Candidates analyse, design, implement, test and evaluate a solution to a problem of their choice requiring the use of a relational database. It is internally assessed and moderated by WJEC.