

## COMPUTING SCIENCE – HIGHER(2014 onwards)

### What are the aims of this course:

- develop and apply aspects of computational thinking in a range of contemporary contexts
- extend and apply knowledge and understanding of advanced concepts and processes in computing science
- apply skills and knowledge in analysis, design, implementation and evaluation to a range of digital solutions with some complex aspects
- communicate advanced computing concepts and explain computational behaviour clearly and concisely, using appropriate terminology
- develop awareness of current trends in computing technologies and their impact in transforming and influencing our environment and society

Related to these aims, and underlying the study of computing science, are a number of unifying themes, including technological progress and trends, the relationship between software, hardware and system performance, and information representation and transfer as a core component of any computation. These are used to explore a variety of specialist areas through practical and investigative tasks.

### What are the recommended entry levels for this course?

The Course provides progression from the National 5 Computing Science Course.

Learners would be expected to have attained the skills, knowledge and understanding required by the following National 5 Computing Science Course gaining an A/B award.

### What content is included in this course?

#### Software Design and Development (Higher)

Advanced concepts and practical problem-solving skills in software design and development through appropriate software development environments. Learners will develop programming and computational thinking skills by designing, implementing, testing and evaluating practical solutions and explaining how these programs work. They will also develop an understanding of computer architecture and the concepts that underpin how programs work. Through investigative work, learners will gain an awareness of the impact of contemporary computing technologies.

#### Information System Design and Development (Higher)

Advanced concepts and practical problem-solving skills in information system design and development through a range of practical and investigative tasks. Learners will apply their computational thinking skills to implement practical solutions using a range of development tools and to develop an understanding the technical, legal, environmental, economic and social issues related to one or more information systems.

**Computing Science Assignment(Added Value Unit):** This Unit requires the learner to apply skills and knowledge from the other Units to analyse and solve an appropriate challenging computing science problem.

### What skills will I develop?

Programming skills, independent working and thinking, working with others, problem solving, collaborative working, research and presentation

### What learning and teaching approaches will I experience?

- active learning
- development of problem solving skills and analytical thinking skills
- practical investigation and inquiry
- appropriate and effective use of technology,
- building on the principles of Assessment is for Learning
- collaborative learning and independent thinking.

**How will I be assessed?** All Units are internally assessed. They will be assessed on a pass/fail basis within centres.

Both units have assessment in the form of written and practical tasks. The Assignment uses

knowledge and skills gained through the Units to solve an appropriately challenging computing science problem.

**What are the homework requirements?**

There is at least one significant written piece of homework each week with ongoing learning homework after each class.

**What are the possible progression routes?**

This Course or its Units may provide progression to:

- Advanced Higher Computing Science Course
- National Certificate Group Awards in Computing, IT and related areas
- employment, apprenticeships and/or training in IT and related fields

and ultimately, for some, to:

- a range of computing-related Higher National Diplomas (HNDs)
- degrees in Computing, IT and related disciplines
- careers in Computing, IT and related disciplines

**Certification anticipated in:**

To achieve the Higher Computing Science Course, learners must pass all of the required Units including the Added Value Unit as well as the question paper which has 90 marks.

Course assessment provides the basis for grading attainment in the Course award.

The Course assessment is graded A–D. The grade is determined on the basis of the total mark for all Course assessments together.