

A-level COMPUTER SCIENCE

AQA specification 7517

Course overview

A Level Computer science is a two year course that enables students to build on and develop skills from GCSE within the areas as listed below. Students will complete this course equipped with the logical and computational skills necessary to succeed in further education and the workplace.

Key features and benefits

Focus on principles, concepts and skills that will

- stand the test of time
- be deliverable in an interesting, up-to-date, practical and relevant manner
- build on the strengths of AQA's current Computing specification

Follows on from the big shift to a true Computer Science A-level specification made by AQA back in 2009 so:

- builds on the experience gained from delivering the current specification
- continues with a similar ethos, with changes to content reflecting developments in the field now considered important to teach

Programming skill, K & U tested by reliable, on-screen exam (AS and A-level), in programming language chosen from a range of possible languages.

Accommodates students who have GCSE CS experience and those who haven't.

Recognises that developing problem solving skill takes time so focus in first year on developing and debugging programmed solutions to problems with flexibility for teacher/student to choose problems to solve.

A-level exposes students to:

- key programming paradigms
- advanced data structures
- traversal, search, sort and optimisation algorithms and their efficiency

Engaging approach to moral, ethical, legal and cultural opportunities and risks from perspective of a computer scientist devising algorithms and writing code.

Explore and engage with the changing technology scene: scaling issues, Cloud services, Big Data, cheap programmable devices such as the Raspberry Pi.

| | What's assessed | How it's assessed | Questions |
|---------|---|--|---|
| Paper 1 | This paper tests a student's ability to program, as well as their theoretical knowledge of computer science from subject content 1- 3 overleaf and the skills required from section 22 above. | <ul style="list-style-type: none">• On-screen exam: 2 hours• 30 minutes• 40% of A-level | Students answer a series of short questions and write/ adapt/extend programs in an electronic answer document Provided by us. We will issue preliminary material, a skeleton program (available in each of the programming languages) and, where appropriate, test data, for use in the exam. |
| Paper 2 | This paper tests a student's ability to answer questions from subject content 4 – 11 overleaf. | <ul style="list-style-type: none">• Written exam: 2 hours• 30 minutes• 40% of A-level | Compulsory short-answer and extended-answer questions. |
| NEA | The non-exam assessment assesses student's ability to use the knowledge and skills gained through the course to solve or investigate a practical problem. Students will be expected to follow a systematic approach to problem solving, as shown in section12 overleaf. | <ul style="list-style-type: none">• 75 marks• 20% of A-level | |

A-level COMPUTER SCIENCE

AQA specification 7517



Course overview

A Level Computer science is a two year course that enables students to build on and develop skills from GCSE within the areas as listed below. Students will complete this course equipped with the logical and computational skills necessary to succeed in further education and the workplace.

Key features and benefits

Focus on principles, concepts and skills that will

- stand the test of time
- be deliverable in an interesting, up-to-date, practical and relevant manner
- build on the strengths of AQA's current Computing specification

Follows on from the big shift to a true Computer Science A-level specification made by AQA back in 2009 so:

- builds on the experience gained from delivering the current specification
- continues with a similar ethos, with changes to content reflecting developments in the field now considered important to teach

Programming skill, K & U tested by reliable, on-screen exam (AS and A-level), in programming language chosen from a range of possible languages.

Accommodates students who have GCSE CS experience and those who haven't.

Recognises that developing problem solving skill takes time so focus in first year on developing and debugging programmed solutions to problems with flexibility for teacher/student to choose problems to solve.

A-level exposes students to:

- key programming paradigms
- advanced data structures
- traversal, search, sort and optimisation algorithms and their efficiency

Engaging approach to moral, ethical, legal and cultural opportunities and risks from perspective of a computer scientist devising algorithms and writing code.

Explore and engage with the changing technology scene: scaling issues, Cloud services, Big Data, cheap programmable devices such as the Raspberry Pi.

| | What's assessed | How it's assessed | Questions |
|---------|---|---|---|
| Paper 1 | This paper tests a student's ability to program, as well as their theoretical knowledge of computer science from subject content 1- 3 overleaf and the skills required from section 22 above. | <ul style="list-style-type: none">• On-screen exam: 2 hours• 30 minutes• 40% of A-level | Students answer a series of short questions and write/ adapt/extend programs in an electronic answer document Provided by us. We will issue preliminary material, a skeleton program (available in each of the programming languages) and, where appropriate, test data, for use in the exam. |
| Paper 2 | This paper tests a student's ability to answer questions from subject content 4 – 11 overleaf. | <ul style="list-style-type: none">• Written exam: 2 hours• 30 minutes• 40% of A-level | Compulsory short-answer and extended-answer questions. |
| NEA | The non-exam assessment assesses student's ability to use the knowledge and skills gained through the course to solve or investigate a practical problem. Students will be expected to follow a systematic approach to problem solving, as shown in section12 overleaf. | <ul style="list-style-type: none">• 75 marks• 20% of A-level | |