

BTEC AAQ Extended Certificate in Computing – Preparatory Work 2026

Introduction

This course provides you with an opportunity to study in the field of Computer Science focusing on *Programming & Network Security*. The full course is made up of 4 units over 2 years. Assessment is continuous and each unit is graded separately and the grades combined to form one outcome at the end of year 2. Cybercrime is often in the news and there is a recognised need for security specialists to be trained to enter this industry.

Throughout the course you will be expected to use skills that are highly sought after and valued by employers, such as organisation, planning, problem-solving and independent study.

This qualification is a two-year vocational course and is equivalent to one A Level (e.g. the Distinction* is worth 56 points: the same UCAS tariff points as the A* grade at A Level).

The four units studied over two years are; *Programming Fundamentals (examined unit January year 1)*, *Human Computer Interaction - HCI (internally assessed, year 1)*, *Computer Network Security and Encryption (examined unit year 2)* and *Practical Programming (internally assessed, year 2)*.

- 66% is assessed through external assessment involving two written examinations.
- 34% of the work is assessed through internal assessment of (project-based) exam board set briefs.
- Final grades of Pass, Merit, Distinction or Distinction* are awarded.

To start off and give you an insight into the course content you are required to complete the following tasks and submit your work in the first lesson. You will submit the document/photo of the document electronically in the lesson. This work will be marked and returned to you. **You will be assessed on your ability to complete all tasks as instructed.** This is an important factor in internal assessment. **This preparatory work forms part of your initial course progress test.**

You must always correctly reference sources of information.

Preparatory Research Tasks

Scenario. Consider the following:

The use of AI in assessments is not permitted by exam boards and there are many factors that are being discussed both by academic institutions (schools, universities), students, teachers, employers and employees. There is a growing unrest around the use of AI replacing many jobs/people and varying opinions about the use of AI in general.

Research the use of AI in software development. **Identify** positives and negatives of AI. Based on your findings, make a judgement on 1.the ethics of AI, 2. whether you believe that students should be allowed to use AI, 3. clearly state the reasons.

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Task 1: Write a short report (roughly one side of an A4 page in standard size text) on the findings from your research (as stated above). Look up the correct way to reference your research and make sure that you are **using Harvard referencing in the work you hand in.**

Task 2: Why do you think referencing is important? (list all you can think of) *Remember to reference your sources for all tasks.*

Task 3: In your project-based assessments, you are required to **Describe, Explain, Analyse, Evaluate, Produce, Employ (strategies), and Develop.** These are referred to as **Command Verbs** and it is **essential** that you have a very clear understanding of the differences to maximise your grade potential.

1. Research and give clear definitions of the assessment verbs listed above.
2. When required to, how do think you can show documented (written) evidence of employ, produce and develop in your reports?

This section will be assessed on the quality of your research, correct referencing, spelling and grammar.

Learning to program

There is no expectation for you to have programmed before, but any experience helps. We focus on Python 3.

There are lots of free tutorials on **Python** available. If you have not programmed before, do investigate these so that it's not so unfamiliar when you start the course.

Through all units in this course, you will need to use computational thinking techniques.

Task 4: State the four key techniques of computational thinking

HCI

Task 5: Your first-year project will be on HCI. Look up Schneiderman's 8 design principles and give an example of an interface that you consider to be making good use of these principles. **State your reasons why.**

Please turn over.

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Network Security and Encryption – Unit 2 (assessed by external exam)

Task 6: This unit focuses on computer security. What do you think are the main threats to computer security?

Research and make brief notes on 3 threats and ways to mitigate them.

Based on your findings, write a short paragraph on advice that you may pass on to the college or a company to help them be secure?

This section will be assessed on your answers and ability to interpret the tasks to provide a suitable response.

(Important – where are you making notes? Where will you make your notes next year?)

Your teachers will not say “Please make notes on this”, but they will expect you to do so. You will not be able to remember everything that is said so please, please get in the habit of making notes!

N.B. Remember to make a note of any website/article or publication that you use for research.