



Electronics



STUDY LEVEL

A level

CONTACT DETAILS

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In this technological age electronics is becoming increasingly important in industry and at home. This course is taught in our well-equipped laboratory so there is plenty of time to design, build and test your own electronic systems.

What will I study?

This course will enable you to gain an understanding of the principles of modern electronics and to become competent in the design and analysis of electronic circuits. Theory and calculations are central to the course but a large amount of the work is practically based and experimental project work forms part of the assessment.

Among the topics you will cover are: Circuit and logic principles, sequential logic, amplifying circuits, timing circuits, transducers, digital/analogue converters, memory systems, information transfer and radio circuits, digital and mobile communications, optoelectronics,

microprocessor systems, filters, interfacing and robotic systems.

Both coursework and written exams count towards your final assessment.

Co-curricular activities?

You will be able to join in specialist lectures including visits to places such as Daresbury Laboratories and the University of Liverpool.

Where might it lead?

Electronics is a scientific and technologically important subject and the A level forms a well-recognised science-based qualification. Success in Electronics A level demonstrates your

capability in an analytical and technical discipline. The course gives a useful introduction to the study of Electronics and related Engineering subjects in Higher Education.

It should be noted that A level Mathematics and often A level Physics are required for Electronics degree courses, though some institutions offer foundation courses in these subjects.

Course Breakdown

Course Summary

- Exam board is Eduqas

| Paper | Content | Marks | Duration | Weighting |
|---------------------|--|-------|-----------------------|-----------|
| Paper 1 | Principles of Electronics | 140 | 2 hours 45 minutes | 40% |
| Paper 2 | Application of Electronics | 140 | 2 hours 45 minutes | 40% |
| Non-exam assessment | Extended system design and realisation tasks | 70 | NA | 20% |

Summary of Content

Core concepts

System synthesis; DC electrical circuits; Input and output sub-systems; Energy and power

Principles of Electronics

Semiconductor components; Logic systems; Operational amplifiers; Signal conversion; AC circuits and passive filters; Communications systems; Instrumentation systems

Applications of Electronics

Timing circuits; Sequential logic systems; Microcontrollers; Digital communications; Optical communication; Mains power supply systems; High power switching systems; Audio systems

Extended system design and realisation

Task 1 (20 marks) – involves the development of a microcontroller system programmed through assembler language.

Task 2 (50 marks) – is a substantial system development including analogue and digital sub-systems in an integrated design.

Suggested Preparation for September

We have compiled an online document which outlines some on the concepts covered in A level Electronics. Students are also encouraged to review their GCSE Physics notes on circuits.

Please [click here](#) to see Electronics document