Electronics A level introduction

Aims:

- To give students a taster of what Electronics A level is like.
- To start developing key skills for the course. This is especially relevant if you've not studied Electronics at GCSE.

Course information

You don't need to have studied GCSE Electronics to do the course - you will be taught everything you need to know from scratch, but you may have to work a little harder at the beginning of year 12 to get the fundamentals established.

We ask for a minimum grade of 7 for Maths, and a 7 for Physics, Electronics or another DT subject, but we would be up for a discussion if you just missed out on these grades.

The A level is run by Eduqas, which is part of the Welsh Joint Examination Committee (WJEC). The specification can be found here. Note that we follow the 2 year course. The text book is entirely online. The first year text book chapters can be found here, and the second year chapters here.

If you are interested at looking at the GCSE text book it's here.

The course is 80% exam and 20% coursework.

There are two exams, both worth 40% of the overall grade. They are both a mix of short answer and extended answer questions with some set in a practical context. Both exams are a generous 2 hours 45 minutes long and have 120 marks. Most students don't need this all this time to finish the paper.

The coursework is made up of a smaller programming project worth 5.7% of the overall A level, and a larger complete design and build worth 14.3% of the overall A level.

The course is taught as theory, hands on practical electronics on breadboards and practicals run on a circuit simulator. The simulator software will be made available for you to use at home and is a great way of trying ideas out.

The summer study programme

This year, for the first time, we are recommending that you complete the following free (and very good) Open University short course:

https://www.open.edu/openlearn/science-maths-technology/introduction-electronics/content-section-0?active-tab=description-tab

The course should take you between 3 and 10 hours to complete depending on your previous experience and how much time you invest in the online practicals.

The material covered in the course will all be covered in lessons and explained in more depth, so don't worry if some of it seems out of reach - aim to understand the principles.

Further reading

Electronics can get very involved very quickly, so all courses below degree level make some simplifications. It's difficult to find text books that make the same simplifications that the Eduqas course does, but one that is fun and has a very practical approach is Charles Platts' Make: Electronics: Learning through discovery which is also available free online here. Working through this (however far you get) would be very beneficial. I would also look at the online text books listed above, at least at core concepts pages.