

Frequently Asked Questions:

Department of Electrical and Electronic Engineering

Question 1:

Briefly, what is E&E Engineering as a discipline?

Answer:

E&E engineering is a specialized field within engineering that revolves around the study, design, and application of electrical systems and electronic devices. It encompasses a wide spectrum, from power generator, transmission, and distribution to the creation of electronic circuits, microprocessors, and control systems for applications across industries like telecommunications, renewable energy, robotics, and healthcare. E&E demands a solid grasp of mathematics, physics, and computer science to innovate, develop, and implement solutions that power our modern world, impact everything from daily gadgets to largescale infrastructure.

Question 2:

What is the difference between Electrical Engineering and Electronic Engineering?

Answer:

While there's overlap between the two fields, electrical engineering leans toward power generation (renewable energy), transmission and motor design (electric vehicles), while electronic engineering is more about designing the electronic components and systems themselves, as well as software related work. At Stellenbosch, you get to specialise into some of our more specific disciplines in your 4th year.

Frequently Asked Questions:

Department of Electrical and Electronic Engineering

Question 3:

What are my options for specialisation in my 4th year?

Answer:

- Energy: Learn about electric motors, power generation, power electronics, renewable energy, energy control and computer-controlled power management
- Telecommunication and Electromagnetics: Focus on high-frequency techniques and the transmission or reception of data.
- Informatics: Focus on high-level computer science, software systems such as Internet communication, virtual storage, hardware, and software design.
- Robotics: The design of robot vehicles, unmanned aeroplanes, and satellites. Modules include control systems, computer, systems & computer science.
- Data Engineering: Finding trends and patterns in data sets. Developing algorithms to help make raw data more useful.

Question 4:

What about Data Engineering? Is this part of the E&E engineering degree?

Answer:

As a general undergraduate E&E student, you will be exposed to data handling and machine learning. However, if you want to specialise as a Data Engineer, you must indicate this from your 1st year of study. Unlike other E&E students, who only specialise in their 4th year, Data Engineering students specialise from the start. This decision must be made carefully: once you choose Data Engineering, changing to another E&E discipline later (e.g. Robotics or Energy) will extend your degree beyond four years. This is because Data Engineering includes external modules (such as statistics and computer science) and omits some core E&E modules, which would need to be completed later. Catching up on these modules typically adds an extra year of study.

Frequently Asked Questions:

Department of Electrical and Electronic Engineering

Question 5:

How does 1st year at E&E look like in terms of academics?

Answer:

All engineering students (except Data engineers) have the same general 1st year. This is to give you a basic exposure to all engineering disciplines like Mechanical engineering, Chemical engineering, etc. In your 2nd year you will decide in which engineering discipline you would like to specialise. For example, if you have entered as a Mechanical engineering student in your 1st year, but you realise that you really enjoyed the 1st year electrical modules, then you can shift from Mechanical to E&E engineering in your 2nd year of studies. However, if you have entered Stellenbosch University as a Data Engineering student, then you are limited in your ability to change to another engineering discipline in your 2nd year.

Question 6:

If I realise during 1st year, I do not want to be a Data Engineer, what are my options?

Answer:

Refer to the previous two questions for context. You must immediately specialise as a Data Engineering (which falls under the E&E dept.) student in your 1st year. If you want to remain an E&E student, but you would like to specialise in another field of E&E disciplines, then you must shift away from Data Engineering in your 2nd year to general E&E Engineering. If you make the shift in your 3rd or final year, you will have to catch-up on your other E&E modules before you can specialise in another E&E discipline in your final year (other than Data Engineering). This will result in an extra year of studies. The only shift that 1st year Data Engineers can make in their 2nd year of studies, without affecting the 4 years of time required to complete the degree, is general E&E or Chemical engineering.



Frequently Asked Questions:

Department of Electrical and Electronic Engineering

Question 7:

As an E&E engineering student, can I study in the fields related to Machine Learning or “Artificial Intelligence”?

Answer:

Yes, absolutely. Although Data Engineering students will have a more in-depth approach to this, as a final year E&E student, you can specialise in any of the other E&E disciplines, which allow for Computer Science and Data Analytics as either prescribed or elective modules.