



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

jt
Junior Tukkie

Career focus

2023 study year

Faculty of Engineering, Built Environment and Information Technology

Choose between Electrical, Electronic and Computer Engineering (EECE)

This is the largest department of its kind at a university in South Africa and we have the largest number of specialisation fields in electrical, electronic and computer engineering.

Electrical Engineering

Electrical Engineering focuses on the generation, distribution, conversion and efficient utilisation of electrical energy to the electrical grid; for industrial, commercial and residential applications; power line communications as well as coal-fired, hydro and nuclear power stations.

Electronic Engineering

Electronic Engineering deals with applications of electronics and this includes:

- Telecommunications (television, radio, cellular)
- Bioengineering
- Signal processing
- Optics
- Power electronics
- Electromagnetism
- Control systems
- Microelectronics
- Electronic design
- Embedded systems

Computer Engineering

Computer Engineering focuses on hardware and software.

- Hardware includes the field of robotics, digital signal processing, optical networks and communication systems.
- Software includes artificial intelligence, e-commerce systems, network security, and the design of operating and embedded systems.

Computer Engineering focuses on the combination of hardware and software to provide optimal solutions to real-world problems.



FUN EVENT:

Robot race car day.
Watch the video here:

<https://www.up.ac.za/eece/article/2669042/annual-robot-car-race>



Industries at which you can expect to find a career:



Electrical Engineering

Applications of Electrical Engineering extend to coal-fired, hydro and nuclear power stations; power line communications and building and railway wiring. There is now also an intense focus on demand side management and energy efficiency to ensure effective and efficient use of our valuable energy resources both renewable and non-renewable.



Electronic Engineering

Electronic Engineering can be applied to telecommunications (television, radio, cellular communications, optical communication and more), industry (control systems and power electronics), military, transport and bioengineering.



Computer Engineering

In short, computer engineers design and optimise computers and computing systems for use in robots, cell phones, cars, wireless networks and cyber security.

Computer engineers specialise in combining hardware and software to produce optimal solutions to problems.

Minimum admission requirements

Programmes	Minimum requirements for NSC and IEB for 2023			APS
	Achievement level			
SCHOOL OF ENGINEERING	English Home Language or English First Additional Language	Mathematics	Physical Sciences	
BEng (Electrical Engineering) [4 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications. The suggested second-choice programmes for BEng (Electrical Engineering) are BSc (Chemistry), BSc (Mathematics) and BSc (Physics). Careers: Electrical engineers are active in the generation, storage, transmission, distribution and utilisation of electrical energy. There is a bright future in renewable energy. Electrical engineers design, supervise the construction, oversee the optimal operation and assure perfect and timely maintenance of all electrical installations for municipalities, residential areas, commercial buildings, factories, mines and industries. Rail transport, water pumping, electrical grids, telecommunications, energy management and smart lighting all fall within the scope of electrical engineering.	5	6	6	35
BEng (Electronic Engineering) [4 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications. The suggested second-choice programmes for BEng (Electronic Engineering) are BSc (Chemistry), BSc (Mathematics) and BSc (Physics). Careers: Electronic engineers are active in various fields, such as telecommunications (fixed networks, wireless, satellite, television, radar and radio frequency networks), entertainment and medicine (magnetic resonance imaging, X-rays, cardiopulmonary resuscitation, infrared tomography, electroencephalograms (EEGs), electrocardiograms (ECGs), rehabilitation engineering and biokinetics), integrated circuit design, bioengineering, military equipment design (vehicle electronics, smart bombs, night vision, laser systems), transport (e-tags, speed measuring, railway signalling, global positioning system (GPS) and mapping), 'smart' dust, safety and security systems (face and speech recognition), banking (ATMs), commerce, robotics, education, environmental management, tourism and many more.	5	6	6	35
BEng (Computer Engineering) [4 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications. The suggested second-choice programmes for BEng (Computer Engineering) are BSc (Chemistry), BSc (Mathematics) and BSc (Physics). Careers: Computer engineers are active in all fields of the information superhighway and the information and communication technology (ICT) world, which include computer systems, software engineering, computer and communications networks, wireless sensor networks, embedded software, electronics, smart control systems and automation, data security, e-commerce, pattern recognition (face and speech recognition) and artificial intelligence. They specialise in combining hardware, software and communication technologies to optimise system performance.	5	6	6	35
Engineering Augmented Degree Programme (ENGAGE) [5 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications. For advice on a second-choice programme, please consult a Student Advisor. To make an appointment, send an email to carol.bosch@up.ac.za. Note: The admission requirements above are relevant to prospective students who will commence their studies in 2023. Admission to ENGAGE in the School of Engineering will be determined by the NSC results, achievement levels of 5 for Mathematics, Physical Sciences and English, and an APS of 30. 2022 entries, will be determined by NSC results, achievement levels of 5 for Mathematics, Physical Sciences and English, and an APS of minimum 30. The National Benchmark Test (NBT) is no longer a requirement for any undergraduate programme in 2023.	5	5	5	30

Note: The Engineering Council of South Africa (ECSA) accredits our programmes and our degrees meet the requirements for Professional Engineers in SA.

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