BEng Electronic Engineering

Electronic engineering is one of the three internationally accepted and closely related subdisciplines in the traditional field of electrical engineering (electrical engineering, electronic engineering and computer engineering). Electronic engineering entails the vast and constantly expanding field of the “electronic world and era”. There is hardly a technological system in the world that does not rely on electronics and electronic engineering. An electronic engineer is someone with a talent for introducing new technologies and upgrading old technologies.

An electronic engineer has a good understanding of the basic sciences and a good education in the theoretical and practical aspects (including design methodology) of electronics and electronic engineering systems. The drastic increase in the development of new electronic systems gobally makes it essential to be well prepared for the work.

Our electronic engineering degree programme was developed over many years to provide exactly what the industry expects from such an engineer. This is an exciting world, and since the “half-life” of microelectronics and photonics is only approximately two-and-a-half years, there are constant improvements and developments.

Electronic engineering is used in almost all information communication and technology (ICT) application fields especially those of telecommunications (cellphones broadcasting internet service providers (ISPs), telecommunications companies (Telcos), global positioning systems (GPSs), transport (aeroplanes, ships, trains, motor cars), consumer equipment (iPods, induction, stoves, fridges, microwave,s televisions), peace-keeping operations (avionics, night vision, electronic warfare, smart bombs, drones, laser, target designators), medicine (bioengineering diagnostic systems, rehabilitation engineering, intensive care units, laser surgery), robotics (mechatronics, mine robots, spacecraft), entertainment (video games, shows, casinos), mining manufacturing, navigation communication, satellite surveillance (day and night entrance control, face recognition) and photonics (lasers, optical fibres, networking).

Electronic engineers have to be innovative and have to ensure that they keep abreast of new technologies. Some electronic engineers move very quickly into management where their analytical synthesis, managerial and leadership skills are used to reach the highest levels of corporate management. Several of this Department's graduates have sold their ideas (patents) for vast sums.

Electronic engineering aims to do things faster, cheaper, in smaller sizes and with much more control and artificial intelligence. Typical subsystems that form part of larger electronic systems are amplifiers,

transmitters, receivers, control systems, sensor systems, power supplies, radio frequency (RF) subsystems, micro- and nanoelectronics and microprocessors, digital signal processors (DSPs) and field-programmable gate arrays (FPGAs). Most electronic systems use a standard process of measurement (sensing), calculate/compare/ store information and controlled outputs (actuators) with extensive computing and communication power.

For more information, please consult the Faculty webpage.

Career Opportunities

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 (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.

Programme Code

12130008

Closing Dates

- **SA** – 22/06/2022
- **Non-SA** – 22/06/2022

Admission Requirements

Important information for all prospective students for 2023

The admission requirements below apply to all who apply for admission to the University of Pretoria

with a **National Senior Certificate (NSC) and Independent Examination Board (IEB) qualifications. Click here for this Faculty Brochure.**

Minimum requirements: 4-year programme **Achievement level**			
English Home Language or English First Additional Language	**Mathematics**	**Physical Sciences**	**APS**
NSC/IEB 5	NSC/IEB 6	NSC/IEB 6	**35**

The suggested second-choice programmes for BEng (Electronic Engineering) are BSc (Chemistry), BSc (Mathematics) and BSc (Physics) if your APS and subject requirements of your first-choice programme are not obtained.

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Minimum requirements: ENGAGE 5-year programme **Achievement level**			
English Home Language or English First Additional Language	**Mathematics**	**Physical Sciences**	**APS**
NSC/IEB 5	NSC/IEB 5	NSC/IEB 5	**30**

Life Orientation is excluded when calculating the APS.

Conditional admission to the four-year programmes in the School of Engineering is guaranteed only if a prospective student complies with ALL the requirements as indicated in the table "Minimum requirements: 4-year programme".

Admission to the Engineering Augmented Degree Programme (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.

Students may apply directly to be considered for the ENGAGE programme.

You will be considered for final admission to degree studies if space allows, and if you have a National Senior Certificate (NSC) or equivalent qualification with admission to bachelor’s degree studies, and

comply with the minimum subject requirements as well as the APS requirements of your chosen programme.

Applicants with qualifications other than the abovementioned should refer to the Brochure: Undergraduate Programme Information 2023: Qualifications other than the NSC and IEB, available at click here.

International students: Click here.

Transferring students

A transferring student is a student who, at the time of applying at the University of Pretoria (UP) is/was a registered student at another tertiary institution. A transferring student will be considered for admission based on NSC or equivalent qualification and previous academic performance. Students who have been dismissed from other institutions due to poor academic performance will not be considered for admission to UP.

Closing dates: Same as above.

Returning students

A returning student is a student who, at the time of application for a degree programme is/was a registered student at UP, and wants to transfer to another degree at UP. A returning student will be considered for admission based on NSC or equivalent qualification and previous academic performance.

Note:

- Students who have been excluded/dismissed from a faculty due to poor academic performance may be considered for admission to another programme at UP, as per faculty-specific requirements.
- Only ONE transfer between UP faculties and TWO transfers within a faculty will be allowed.
- Admission of returning students will always depend on the faculty concerned and the availability of space in the programmes for which they apply.

Closing date for applications from returning students

Unless capacity allows for an extension of the closing date, applications from returning students must be submitted before the end of August via your UP Student Centre.

Minimum duration of study

4 years, full-time

Faculty Notes

All modules will only be presented in English, as English is the language of tuition, communication and correspondence at the University of Pretoria.

Faculty Yearbooks: click here.

The University of Pretoria has decided not to set a specific closing date for applications to non-selection programmes for 2023. Applications will close when the available study spaces are filled (**close on availability of space**). Once the available number of study places for a specific programme are filled, no further applications for that particular programme will be considered. All applicants are therefore strongly advised and encouraged to submit their applications as soon as possible after 1 April 2022 and to check the application site (UP Student Portal) regularly.

The Faculty of Engineering, Built Environment and Information Technology at the University of Pretoria is a leading source of graduates in the engineering, built environment and information technology professions. We achieve this by a focus on research to drive innovative and enquiry-led teaching for educating and positioning our students to be leaders in their professions. The Faculty has extensive and cutting-edge teaching, learning and laboratory facilities integrated with the excellent suite of facilities and services offered by the University. We facilitate access to our qualifications through our extended programmes but expect our students to excel and develop as future professionals through our programme offering. We invite you to consider enrolling in one of our programmes if you share our vision of excellence and want to position yourself as a leader in the professions that we support.

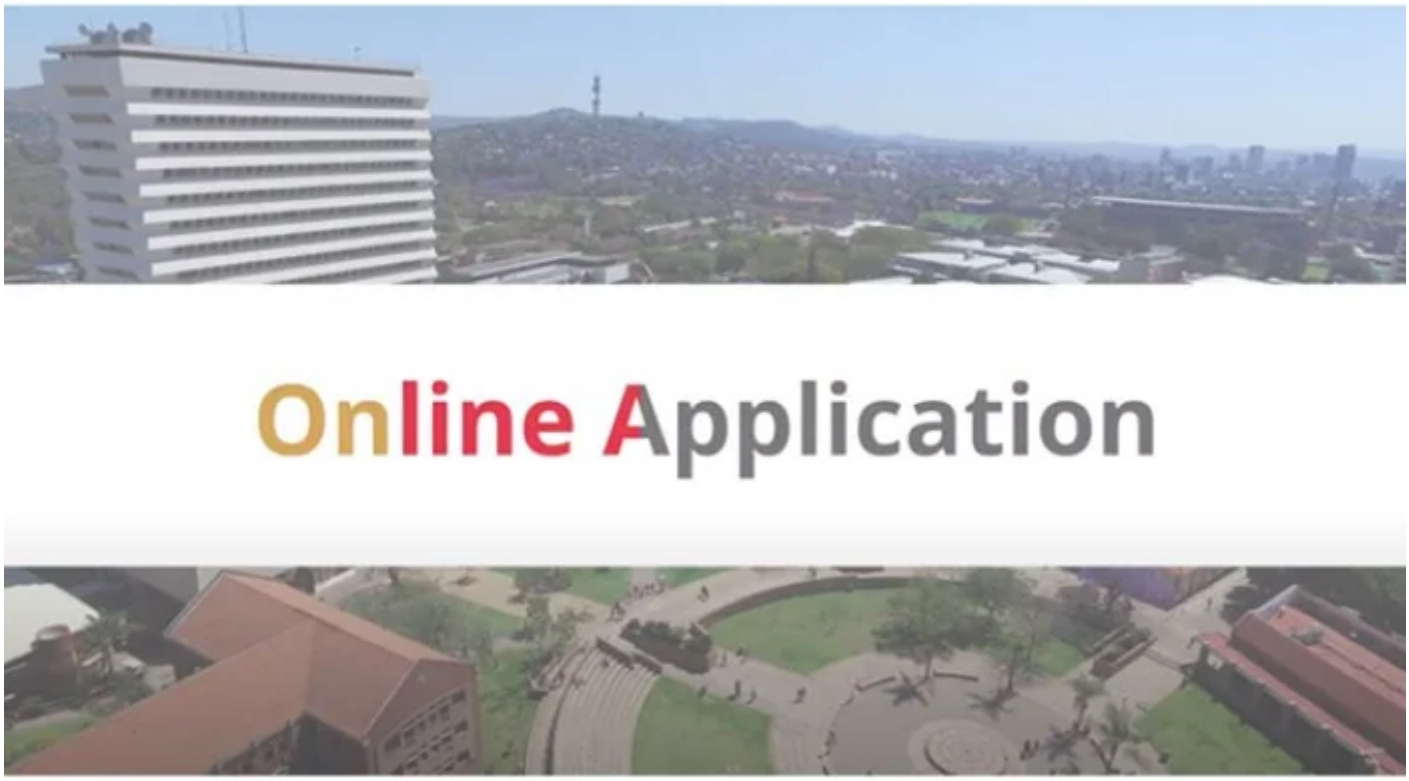
The Faculty is organised in four schools: the School of Engineering, the School for the Built Environment, the School of Information Technology and the Graduate School of Technology Management. The School of Engineering is the largest of its kind in the country in terms of student numbers, graduates and research contributions and offers programmes in all the major engineering disciplines with many specialisations also offered at undergraduate and graduate level.

The University of Pretoria aims to be internationally competitive while also locally relevant. Advisory boards at both faculty and departmental level promote alignment and excellence in our teaching and research activities. Where applicable and available our programmes are accredited by statutory and professional bodies at both national and international level.

Enquiries about the programme

Click Here

How to apply



Note: Also consult General Rules and Information on the Yearbook website for additional information.

Disclaimer: Due to the continuous restructuring of the Faculty and this website, some of the information displayed here may not fully reflect the most recent developments in the Faculty. Any discrepancies that are experienced may be taken up with Student Administration of the Faculty.