

# BEng Electronic Engineering

- [University of Pretoria](#)
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- 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. With the drastic increase in the development of new electronic systems all over the world it is essential to be well prepared for the work of an electronic engineer.

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 with the “half-life” of microelectronics and photonics being 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.

The aim of electronic engineering is 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.

- **Disclaimer:** *This publication contains information about regulations and programmes of the University of Pretoria. Amendments to or updating of the information may be effected from time to time without prior notification. The accuracy, correctness or validity of the information contained here is therefore not guaranteed by the University at any given time and is always subject to verification. The user is kindly requested to verify the correctness of the information with the University at all times. Failure to do so will not give rise to any claim or action of any nature against the University by any party whatsoever.*

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## 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.

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## Programme Code

12130008

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## Closing Dates

- **SA** – 30/09/2020
  - **Non-SA** – 31/08/2020
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## Admission Requirements

- The closing date is an administrative admission guideline for non-selection programmes. Once a non-selection programme is full and has reached the institutional targets, then that programme will be closed for further admissions, irrespective of the closing date. However, if the institutional targets have not been met by the closing date, then that programme will remain open for admissions until the institutional targets are met.
- The following persons will be considered for admission: Candidates who are in possession of a certificate that is deemed by the University to be equivalent to the required National Senior Certificate (NSC) with university endorsement; candidates who are graduates from another tertiary institution or have been granted the status of a graduate of such an institution, and candidates who are graduates of another faculty at the University of Pretoria.
- Life Orientation is excluded when calculating the APS.
- Grade 11 results are used for the conditional admission of prospective students.
- A valid qualification with admission to degree studies is required.
- Minimum subject and achievement requirements, as set out below, are required.
- 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.
- Admission to ENGAGE in the School of Engineering will be determined by the NSC results, achievement levels of 5 for Mathematics and 5 for Physical Sciences, and an achievement level of 5 for English, together with an APS of 30.
- Students may apply directly to be considered for the ENGAGE programme.
- All lectures at the University of Pretoria are presented in English only.

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

## Transferring students

### Candidates previously registered for the BSc - Extended programme

The Admissions Committee of the faculty considers applications of candidates who were previously registered for the BSc - Extended programme, on grounds of their NSC results as well as academic merit. Such students will only be considered for the four-year programme if they have passed all the prescribed modules and obtained a minimum of 65% in the Mathematics, Physics and Chemistry

modules, respectively.

### Candidates previously registered at UP or at another university

The faculty's Admissions Committee considers applications of candidates who have already completed the final NSC examination and/or were previously registered at UP or at another university, on grounds of their NSC results as well as academic merit. Candidates who were dismissed from other faculties or universities will not be considered.

### Candidates previously registered at a teacher's college or university of technology

The faculty's Admissions Committee considers the application of these candidates on the grounds of their NSC results as well as academic merit.

### Qualifications from countries other than South Africa

- Citizens from countries other than South Africa and South African citizens with foreign qualifications must comply with all the other admission requirements and the prerequisites for subjects/modules.
- In addition to meeting the admission requirements, it may be expected from candidates to write the **TOEFL, IELTS or SAT**, if required.
- Candidates must have completed the National Senior Certificate with admission to degree studies or a certificate of conditional exemption on the basis of a candidate's foreign qualifications, the so-called "Immigrant" or "Foreign Conditional Exemption". The only condition for the "Foreign Conditional Exemption" that is accepted is: 'completion of the degree course'. The exemption certificate is obtainable from Universities South Africa (USAf). Detailed information is available on the website at [click here](#).

University of Pretoria website: [click here](#)

#### Minimum requirements

##### Achievement level

##### English Home

##### Language or

##### English First

##### Additional

##### Language

		Mathematics		Physical Sciences		APS
NSC/IEB	AS Level	NSC/IEB	AS Level	NSC/IEB	AS Level	
5	C	>65%	C	>65%	C	<b>33</b>

\* Cambridge A level candidates who obtained at least a D in the required subjects, will be considered for admission. Students in the Cambridge system must offer both Physics AND Chemistry with performance at the level specified for NSC Physical Sciences in the table above.



\* International Baccalaureate (IB) HL candidates who obtained at least a 4 in the required subjects, will be considered for admission. Students in the IB system must offer both Physics AND Chemistry with performance at the level specified for NSC Physical Sciences in the table above.

### ENGAGE Programme minimum requirements

#### Achievement level

#### English Home

#### Language or

#### English First

#### Additional

#### Language

		Mathematics		Physical Sciences		APS
NSC/IEB	AS Level	NSC/IEB	AS Level	NSC/IEB	AS Level	
5	C	5	C	5	C	<b>30</b>

### Duration of study

4 years, full-time.

### Faculty Notes

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



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research activities. Where applicable and available our programmes are accredited by statutory and professional bodies at both national and international level.

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## Enquiries about the programme

[Click Here](#)

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## How to apply



# Online Application





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.