BEng Computer Engineering ENGAGE

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- BEng Computer Engineering ENGAGE

Computer engineering is one of the three internationally accepted and closely related subdisciplines of the traditional field of electrical engineering (electrical engineering, electronic engineering and computer engineering). Computer engineering is the most dynamic and rapidly growing engineering discipline in the vast and constantly expanding field of information and communication technology (ICT). There is hardly a technological system in the world that does not rely on computer engineering. It involves a combination of electronics, computer systems (hardware and software) and communication systems. A computer engineer is someone with a talent for optimising electronic systems with dedicated computing systems and control software. This includes computer and communication networks of all sizes – from a couple of microcontrollers to the worldwide web. It is essential to know what this career entails before enrolling for the programme.

A computer engineer has a good understanding of the basic sciences and a sound education in the theoretical and practical aspects (including design methodology) of electronics, digital systems, computer systems and control software. With the dramatic increase in computing and storage capabilities, as well as a decrease in size and cost, most technological systems include components of computer engineering.

The computer engineering degree at the University of Pretoria was developed in 1998 to deliver graduates who can undertake the most demanding challenges of the ICT world in all its forms. Examples of computer engineering include cellphone technology, car control computers for engine management, entertainment systems, security systems, air-conditioning, active suspension and the anti-lock braking system (ABSs), which all use the principles of sensing, computing and actuation under optimised software control. This is the fastest- growing new discipline in engineering, and job opportunities for graduates exist all over the world.

Computer engineering is used in the following fields in particular: telecommunications, computer networking, cellphone operations, computer system companies, military technologies (avionics, night vision, electronic warfare, smart bombs, drones, laser target designators), transport technologies (toll roads), internet banking, security systems, consumer equipment, modems, handheld scanners, voting, medical systems (portable and remote diagnostic recorders), robotics, entertainment equipment, global positioning system (GPS) navigation, measurement and control software, and fibre-optic (self-healing networks).

A computer engineer has to be innovative and must keep abreast of new technologies and developments in both software and hardware. Some computer engineers move very quickly into

management, where their analytical, synthesis, managerial and leadership skills enable them to reach the highest levels of corporate management.

The aim of computer engineering is to integrate electronics, computing and control systems in the best way possible to ensure fast, small and powerful systems. Typical subsystems include sophisticated software for artificial intelligence, biometrics, radio frequency (RF) subsystems and real-time applications, software engineering, human language technologies, e-commerce, m-commerce, billing software, data security and various networking applications, such as storage area networks.

For more information, please consult the Faculty webpage.

Career Opportunities

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.

Programme Code

12136009

Closing Dates

Applications for this plan have closed.

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 Achievement level English Home Language or English First Additional Language	Mathematics	Physical Sciences	APS
NSC/IEB 5	NSC/IEB 5	NSC/IEB 5	**30**

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.

Life Orientation is excluded when calculating the APS.

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

5 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.