UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Engineering, Built Environment and Information Technology

Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie / Lefapha la Boetšenere, Tikologo ya Kago le Theknolotši ya Tshedimošo

Bachelor of Engineering in Computer Engineering

Make today matter

What does the programme entail?

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), and almost every technological system in the world relies on it. 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 by introducing 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 thorough 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. Due to 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 offered by the University of Pretoria was developed in 1998 to deliver graduates who are able to deal with the most demanding challenges of the ICT world in all its forms. Examples of computer engineering include cell phone technology, car-control computers for engine management, entertainment systems, security systems, air-conditioning systems, active suspension and anti-lock braking systems (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.

Career opportunities

Computer engineering is used in the following fields in particular:

- Telecommunications
- Computer networking
- Cell phone operations
- Computer system companies, military technologies (avionics, night vision, electronic warfare, drones)
- Transport technologies
- Internet banking
- Security systems
- Consumer equipment
- Modems, hand-held scanners
- Voting
- Medical systems (portable and remote diagnostic recorders)
- Robotics
- Entertainment equipment
- Global positioning system (GPS)
- Navigation
- Measurement and control software
- Fibre-optic (self-healing) networks

Computer engineering graduates have access to a wide range of job opportunities, which include working for a company (large or small) anywhere in the world as an employee, being an entrepreneur or being self-employed.

Research and development opportunities are available in the fields of communication, computer systems, networking and peace-keeping operations, and in medical, transportation, software and electronics companies in South Africa and all over the world. This provides opportunities for innovation: thinking of a problem to be solved and coming up with a solution and even possibly patenting the idea. The academic programme at the University of Pretoria prepares students to become leaders in the field of computer engineering—with excellent financial rewards and professional satisfaction.

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(continued)

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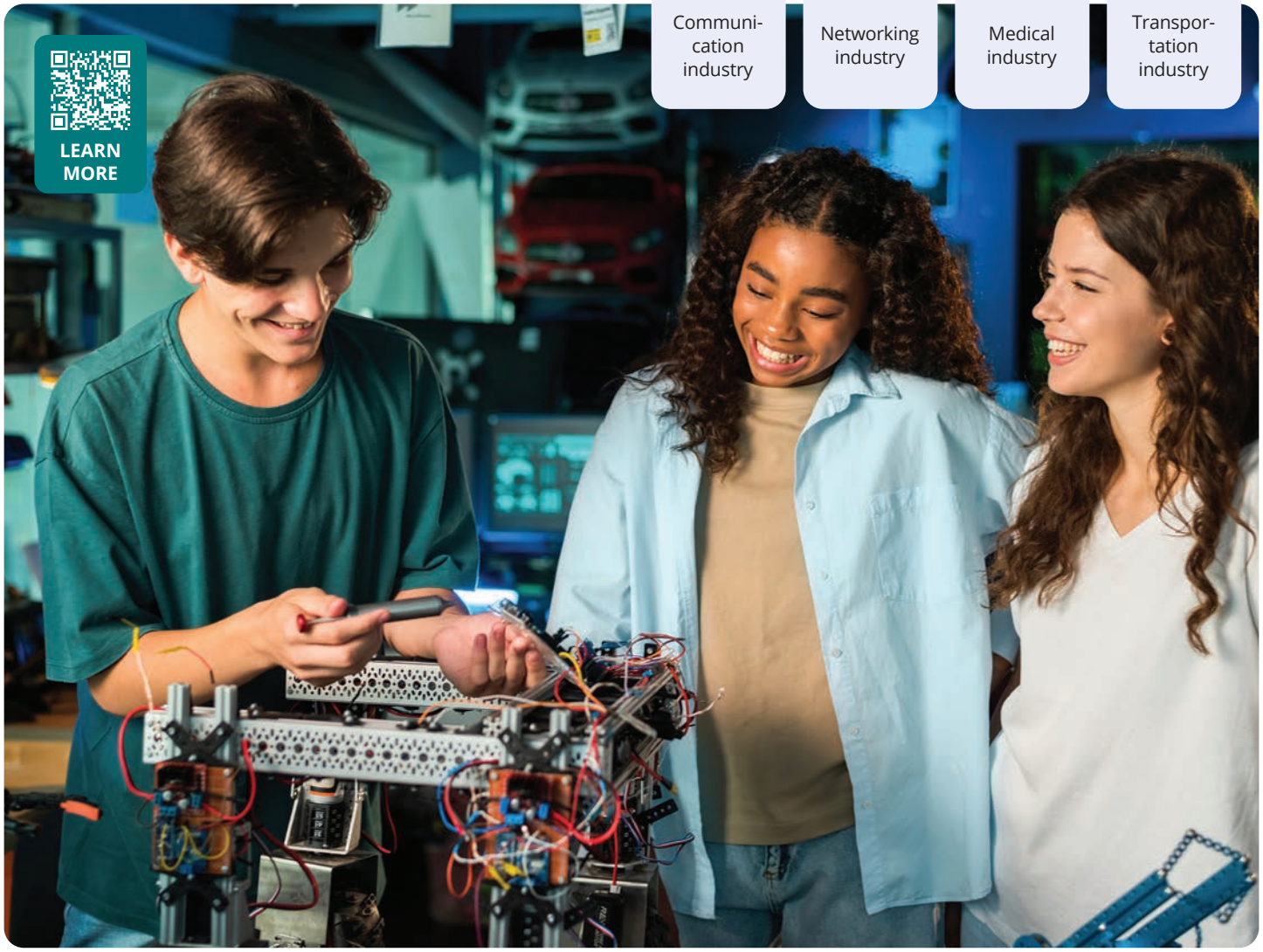
Who are the ideal candidates?

The ideal candidate needs the following skills:

- A sound understanding of basic sciences
- A talent for optimising electronic systems and control software
- A problem-solving mind

Where are computer engineers employed?

- Research and development
- Computer systems industry
- Software and electronics industry
- Communi-cation industry
- Networking industry
- Medical industry
- Transpor-tation industry



Minimum admission requirements

Programme	Minimum requirements for NSC/IEB for 2026			
	Achievement level			APS
SCHOOL OF ENGINEERING	English Home Language or English First Additional Language	Mathematics	Physical Sciences	
Bachelor of Engineering in Computer Engineering [4 years]	5	6	6	**35**

The suggested second-choice programmes for Bachelor of Engineering in Computer Engineering are Bachelor of Science in Chemistry, Bachelor of Science in Mathematics and Bachelor of Science in Physics if your APS and subject requirements of your first-choice programme are not obtained.

Contact information Prof Herman Myburgh (Function Head: Marketing) | **Tel** +27 (0)12 420 4540 | **Email** eerc@up.ac.za
Websites www.ee.up.ac.za | www.up.ac.za/school-of-engineering | www.up.ac.za/ebit-postgraduate

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Minimum requirements for applicants with a school leaving certificate not issued by Umalusi (South Africa)

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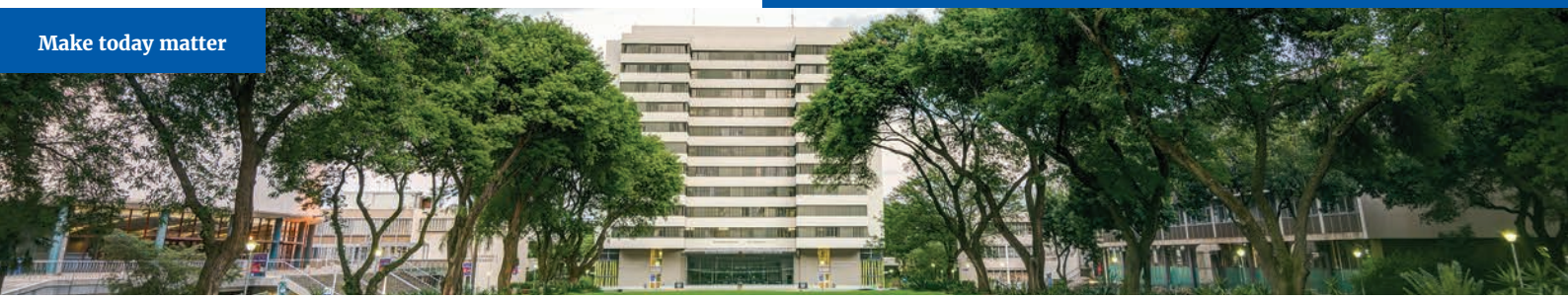

Refer to the International undergraduate prospectus at www.up.ac.za/programmes > Undergraduate > Admission Information or click here for more information.

- The closing date for applications for programmes in this faculty is 30 June.
- Meeting the minimum admission requirements does not guarantee admission into a programme.

FACULTY OF ENGINEERING, BUILT ENVIRONMENT AND INFORMATION TECHNOLOGY Programmes	Minimum requirements for 2026 Achievement level									
		GCSE #			AS Level	A Level	IB			
		The qualifications in the two columns below will be considered only for conditional admission. If final AS and/or A levels have been completed, these two columns will not apply. It can also not be used for final admission and/or registration.								
	Compulsory subjects	CIE IGCSE LGCSE BGCSE EGCSE O Level NSSC OL CGCE UCE NECO WAEC WASSCE ZGCE	UK England Wales Northern Ireland Pearson Edexcel GCSE	HIGCSE NSSC HL	GCE CIE NSSC AS	GCE CIE CGCE UACE WAEC ZGCE	IB SL	IB HL	KOMBI ABITUR	KCSE
Bachelor of Science in Architecture	English Mathematics Physics	C D D	4 3 3	3 3 3	C D D	E E E	4 2 2	3 2 2	60-69% 50-59% 50-59%	B C+ C+
Bachelor of Town and Regional Planning	English Mathematics	C D	4 3	3 3	C D	E E	4 2	3 2	60-69% 50-59%	B C+
Bachelor of Science in Construction Management	English Mathematics Physics Chemistry (or Accounting*)	C C D D	4 4 3 3	3 3 3 3	C C D D	E E E E	4 4 2 2	3 3 2 2	60-69% 60-69% 50-59% 50-59%	B B C+ C+
Bachelor of Science in Real Estate										
Bachelor of Science in Quantity Surveying										
Bachelor of Engineering in Industrial Engineering	English Mathematics Physics Chemistry	C B B B	4 5 5 5	3 2 2 2	C B B B	E D D D	4 5 5 5	3 4 4 4	60-69% 70-79% 70-79% 70-79%	B B+ B+ B+
Bachelor of Engineering in Chemical Engineering										
Bachelor of Engineering in Civil Engineering										
Bachelor of Engineering in Electrical Engineering										
Bachelor of Engineering in Electronic Engineering										
Bachelor of Engineering in Mechanical Engineering										
Bachelor of Engineering in Metallurgical Engineering										
Bachelor of Engineering in Mining Engineering										
Bachelor of Engineering in Computer Engineering										

Only English with at least a C symbol on this level can be used for final admission.
* Offer both PHYSICS and CHEMISTRY, or ACCOUNTING only

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FACULTY OF ENGINEERING, BUILT ENVIRONMENT AND INFORMATION TECHNOLOGY Programmes	Minimum requirements for 2026									
	Achievement level									
		GCSE #			AS Level	A Level	IB			
		The qualifications in the two columns below will be considered only for conditional admission. If final AS and/or A levels have been completed, these two columns will not apply. It can also not be used for final admission and/or registration.								
	Compulsory subjects	CIE IGCSE LGCSE BGCSE EGCSE O Level NSSC OL CGCE UCE NECO WAEC WASSCE ZGCE	UK England Wales Northern Ireland Pearson Edexcel GCSE	HIGCSE NSSC HL	GCE CIE NSSC AS	GCE CIE CGCE UACE WAEC ZGCE	IB SL	IB HL	KOMBI ABITUR	KCSE
Bachelor of Information Technology in Information Systems	English Mathematics	C C	4 4	3 3	C C	E E	4 4	3 3	60-69% 60-69%	B B
Bachelor of Information Science	English	D	3	3	D	E	3	2	50-59%	C+
Bachelor of Information Science specialising in Publishing	English	C	4	3	C	E	4	3	60-69%	B
Bachelor of Information Science specialising in Multimedia**	English Mathematics	D C	3 4	3 3	D C	E E	3 4	2 3	50-59% 60-69%	C+ B
Bachelor of Science in Computer Science	English Mathematics	C B	4 5	3 2	C B	E D	4 5	3 4	60-69% 70-79%	B B+
Bachelor of Science in Information Technology in Information and Knowledge Systems	English Mathematics	D B	3 5	3 2	D B	E D	3 5	3 4	50-59% 70-79%	C+ B+
Bachelor of Engineering This is a 5-year programme in all Engineering disciplines. *Previously called ENGAGE*	English Mathematics Physics Chemistry	C C C C	4 4 4 4	3 3 3 3	C C C C	E E E E	4 4 4 4	3 3 3 3	60-69% 65% 65% 65%	B B B B

Only English with at least a C symbol on this level can be used for final admission.
* Offer both PHYSICS and CHEMISTRY, or ACCOUNTING only
**Possible name change to: Bachelor of Information Science specialising in Interactive Technology