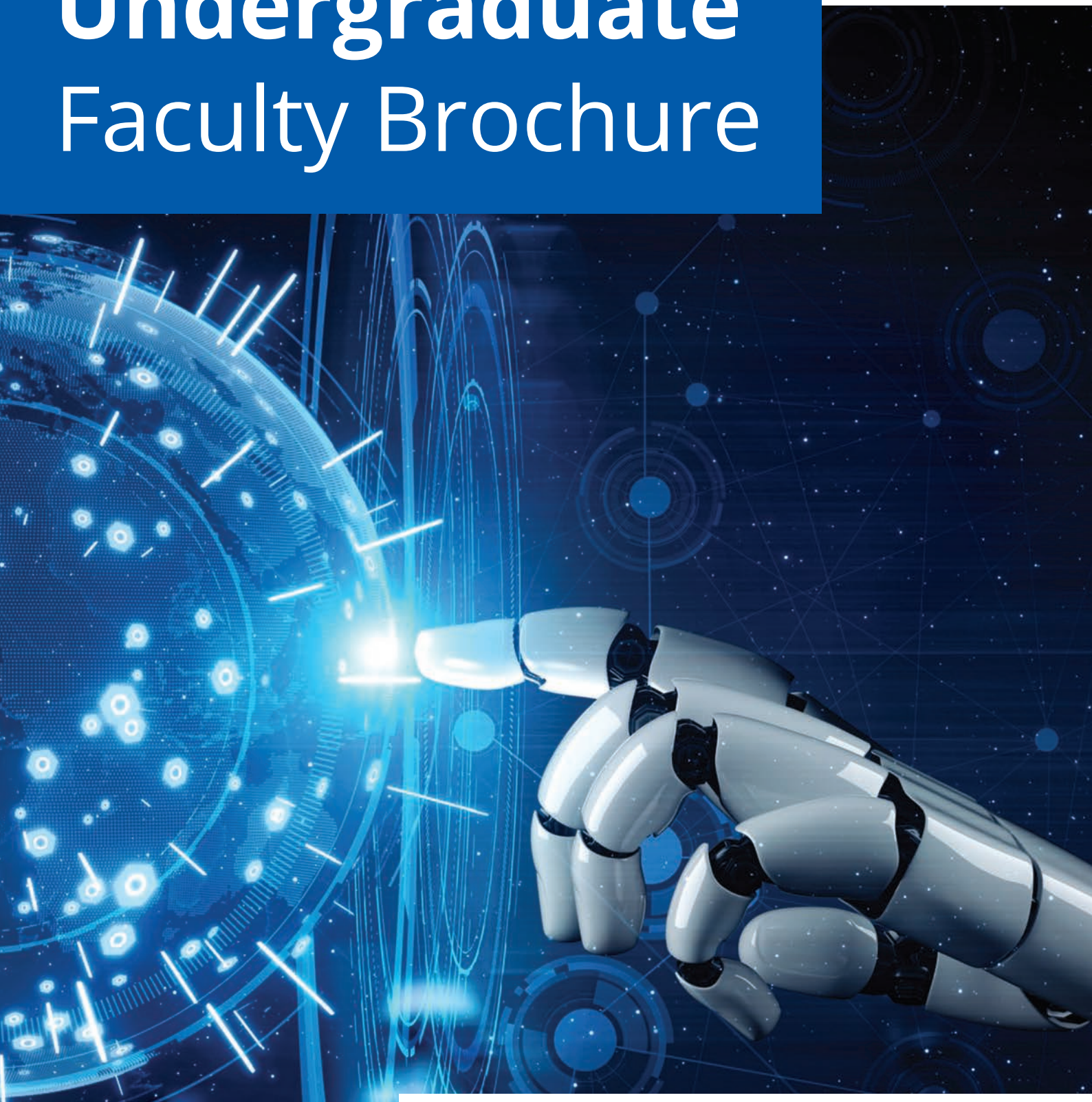
Undergraduate Faculty Brochure

2026



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

The closing date for programmes in this Faculty is **30 June**.

Make today matter

www.up.ac.za

MESSAGE FROM THE DEAN

Welcome to the University of Pretoria's Faculty of Engineering, Built Environment and Information Technology

Finding innovative solutions that lead to real-world change is at the heart of the University of Pretoria's Faculty of Engineering, Built Environment and Information Technology (EBIT). We are home to a generation of leaders and innovators who are dedicated to making a difference.

Our students and researchers strive to contribute to society by focusing on topics that will solve global challenges. Therefore, we focus on becoming the change we want to see in the world through innovative and cutting-edge research and collaborative community engagement.

From their first year of study to graduation, our students are encouraged to do more than just qualify for a given profession. Our graduates are nurtured to become engineers who solve engineering challenges for future generations, built environment practitioners who create sustainable solutions for society, and information technology (IT) specialists who use the disruptive technologies of the Fourth Industrial Revolution to the utmost benefit of the human race.

Our academic community is increasingly concerned about the future of humanity, particularly in terms of global challenges such as energy security, food security, infrastructure security, and data security. We seek solutions that extend beyond traditional disciplinary boundaries and contribute to society at large. The principles of Society 5.0 are a driving force in the Faculty. This phenomenon emphasises a human-centred approach, leveraging cyber-physical systems to create a society where people live comfortably and harmoniously with technology.

A degree from the University of Pretoria turns our students into engineers who can design things to support life beyond traditional engineering concepts, such as enhancing water security by improving the country's dams and sewerage works and designing sensors to determine water quality.

Our graduates will become built environment practitioners who can design and plan locations to support life, such as clinics and schools that are easily accessible to people in rural areas, houses close to job opportunities, and infrastructure that provides efficient transportation. They will become IT specialists who focus on data to support life, ensuring access to data, the security of data, and ICT solutions that support health, education, and food security. Our strategic vision is to pursue innovation while maintaining relevance for the present challenges.

GO IMPACT

Your university journey should be seen as a partnership where EBIT equips you with the skills you need to impact and innovate. As a member of the EBIT Generation, you must find where you belong and where you can maximise your contribution for the greater good.

EBIT IS ORGANISED INTO FOUR SCHOOLS

- School of Engineering
- School for the Built Environment
- School of Information Technology
- Graduate School of Technology Management

Prof Wynand JvdM Steyn
Dean: Faculty of Engineering, Built Environment and Information Technology

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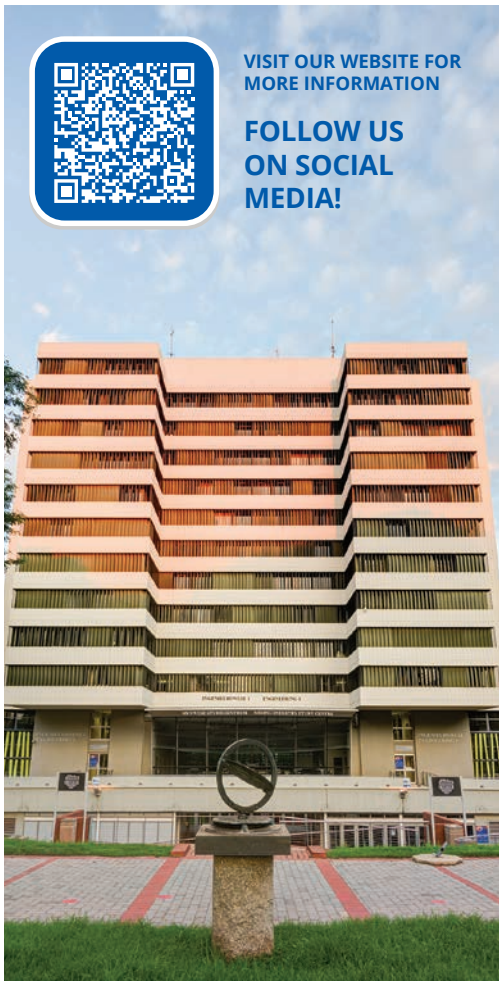

ABOUT THE FACULTY

TOP 650

EBIT is a source of locally relevant and internationally competitive programmes, and home to some of the University's exceptional researchers. We are one of the few academic faculties in Africa to feature among the top 650 in the world in SIX subject areas in the 2024 QS World University Rankings by Subject in the field of engineering and technology.

- Minerals & Mining Engineering
- Chemical Engineering
- Mechanical & Aeronautical Engineering
- Electrical & Electronic Engineering
- Computer Science & Information Systems

Rankings based on 2024 QS Rankings, US News World Report, 2022 Shanghai Rankings and the Minerals Education Trust Fund.

WE HAVE WHAT YOU ARE LOOKING FOR

22	40	54	22	90+
Undergraduate programmes	**Honours programmes**	**Master's programmes**	**Doctoral programmes**	**Academic laboratories**

Why #ChooseUP?

As one of the country's oldest and most prestigious universities, the University of Pretoria produces sought-after graduates, who become well-rounded, socially responsible citizens. The Faculty of Engineering, Built Environment and Information Technology (EBIT) is the largest of the University's nine faculties, and produces some **28%** of South Africa's graduate engineers. The University strives to instill in its students, graduates and staff a realisation that every action in the present shapes the future, and encourages them to **make today matter.**

Produced by the Department of Enrolment and Student Administration in December 2024.
Comments and queries may be directed to ssc@up.ac.za or tel: +27 (0)12 420 3111.

FACULTY WEBSITE:

POSTGRADUATE WEBSITE:

ONLINE APPLICATION PROCESS FOR STUDIES IN 2026

Please read through all the steps below to determine which actions are relevant for your application to study at the University of Pretoria in 2026. Citizens from countries other than South Africa (i.e. applicants who are not South African citizens) should also take note of the steps below with specific reference to the important information above the tables in the brochure: Undergraduate Prospectus 2026: Applicants with a National Senior Certificate (NSC) or Independent Examinations Board (IEB) Certificate, available at **www.up.ac.za/programmes > Undergraduate > Admission information.**

1 Choose a programme

Read about all the undergraduate programmes offered at UP in the brochure:
Undergraduate Prospectus 2026: Applicants with a National Senior Certificate (NSC) or Independent Examinations Board (IEB) certificate is available at **www.up.ac.za/programmes > Undergraduate > Admission information.**

- It is important to indicate a first- as well as a second-choice programme on your Online Application. The Online Application Form only makes provision for two study choices. If you want to add a third choice, or if you want to change your study choice after you have already submitted your online application, please forward your request to **ssc@up.ac.za**.
- Ensure that your first- and second-choice programmes meet the minimum admission requirements, as well as the faculty's selection guidelines.
- Please note that certain programmes will not be considered if indicated as your second choice. Refer to the faculty tables in the abovementioned brochure available at **www.up.ac.za/programmes > Undergraduate > Admission information.**
- Your application will be considered for all study programmes that you applied for and you will be notified via the UP Student Portal on your application status.
- For study advice, make an appointment with a Student Advisor via Ms Carol Bosch at **carol.bosch@up.ac.za.**

More information is available at **www.up.ac.za/programmes > Undergraduate > Admission information.**

2 Tuition and residence fees

For more information on tuition and residence fees, go to **www.up.ac.za/article/2749200/fees-and-funding.**

- **Fee quotation:** Please go to **www.up.ac.za/student-fees** to get an estimation of the study fees for the programme/s that you are interested in.
- **Family discount:** When two or more dependent children of the same family are registered simultaneously at the University of Pretoria, they may apply for a rebate on tuition fees.
- **The 2.5% discount:** If the student account is paid in full (i.e. 100%) by 30 April, a 2.5% discount is applicable.
- **Initial payment:** This payment is not an additional amount payable, but the first payment towards the tuition fees.
- **Residence reservation fee:** This fee will be payable within 30 days after placement in a UP residence. For residence room fees, go to **www.up.ac.za/accommodation.**
- **Fees paid by bursaries:** Students must submit written proof from the sponsor of the bursary awarded to them prior to registration, otherwise they will be responsible for the initial payment. The final decision regarding the acceptance of a bursary letter rests with the University.
- **How and where to pay:** We encourage you to make EFT or credit card payments. Please allow at least five working days for the payment to reflect on your student account.
- **UP banking details:** Refer to **www.up.ac.za/student-fees/article/2735940/up-bank-details.**

More information is available at **www.up.ac.za/student-fees.**

3 Apply to study at UP in 2026

Apply ONLINE at **www.up.ac.za/apply** from 1 April in the year preceding studies.

- Applications open on **1 April**. All study programmes at the University of Pretoria are number-limited. You are encouraged to submit your application as soon as possible after 1 April.
- The closing date for applications for all UP study programmes is **30 June.** This excludes the programmes in the Faculty of Veterinary Science, which close on **31 May.**
- Before you start to complete the Online Application, please watch an online application demonstration at **www.up.ac.za/juniortukkie > Study at UP.**
- Ensure that the email address that you indicate on your Online Application is correct as your temporary password and T-number will be sent to this email address.
- You will receive your student number within 10 working days after you have submitted your Online Application.
- On receipt of your student number, you will be able to track your application status on the UP Student Portal. Refer to Step 6 for instructions on how to gain access to your UP Student Portal.

4 Apply for residence placement

The Online Application has a section to be completed if you are interested in residence placement.
More information is available at **www.up.ac.za/accommodation.**

- The demand for accommodation by far exceeds the available spaces. Applications open on **1 April.** The earlier you apply, the better your chances.
- A student who is admitted to a University of Pretoria residence for the first time must pay a reservation levy within the prescribed period. This amount is communicated in the placement letter.

ONLINE APPLICATION PROCESS FOR STUDIES IN 2026

5 Apply for bursaries and loans

Visit the relevant website for closing dates.

UP bursaries and loans

- Applications must be submitted via the UP Student Portal or **www.up.ac.za/fees-and-funding.** No late applications will be accepted.
- UP sports bursaries: **www.up.ac.za/sport.**

National Student Financial Aid Scheme (NSFAS)

- For applications and comprehensive information, visit **www.nsfas.org.za.**

Fundi (previously known as Eduloan)

- As a registered credit provider, Fundi covers a wide range of student-related necessities such as books, accessories, laptops, university and private accommodation, as well as study tuition with a fixed monthly instalment. Anyone can apply for a loan (students, parents or guardians), provided that the applicant is in full-time employment or has a registered business. For more information, visit **www.fundi.co.za.**

Other bursary options

- Bursaries according to field of study: **www.gostudy.mobi.**
- The Bursary Register: Contact **rlevin@mweb.co.za** or **+27 (0)11 672 6559.**

6 How to access the UP Student Portal

Go to **www.up.ac.za** and click on **My UP Login.**

Note: A T-number is a temporary number and NOT a student number. This T-number is issued to the applicant at the beginning of the Online Application process. An applicant will receive a UP student number within 10 working days after the application has been submitted successfully. Applicants will only be able to access the UP Student Portal once they have received a UP student number, eg u26123456.

Please watch a video demonstration on: "How to access the UP Student Portal" at **https://youtu.be/Yd4pWr8IvNk.**
Go to **www1.up.ac.za** and click on the **"New user"** link.

Instructions:

- Type in your username (u followed by your student number) and your national ID or passport number. Click the "Proceed" button.
- Set up your new password and confirm the password in the second block. Click the "Proceed" button.
- A message is displayed to inform the user that the password was set successfully. Click the "OK" button.
- A list of challenge questions appears. Select any three of these challenge questions and then click the "Submit" button. Enter your answer on the three challenge questions you chose and click the "Save" button.
- A message will be displayed to inform you that your challenge questions have been set up. Click the "OK" button.
- You are now ready to access the UP Student Portal.
- Sign in again with your username and password.

7 UP student contract

Before a student will be able to register, a contract needs to be concluded between the student and the University of Pretoria.

- Students must access the contract online on the UP Student Portal at **www.up.ac.za > My UP Login.**
- The contract should be completed online, and then printed and signed.
- Hand your original, signed UP student contract in at the Student Service Centre, Hatfield Campus. You can also post your contract to the Student Service Centre, University of Pretoria, Private Bag X20, Hatfield, 0028; or you can courier your contract to University of Pretoria (Contracts), University Road entrance, Hatfield, Pretoria, 0083.
- The University of Pretoria does not accept faxed, scanned or emailed contracts.
- Before you start to complete the UP student contract, please watch a video demonstration on: "How to complete the UP student contract" at **https://www.youtube.com/watch?v=BycC1rJLDsc.**

8 Orientation and registration for new first-year students

- The Orientation Programme will be available on **www.up.ac.za/orientation** by the end of December.
- Online registration information will be available on **www.up.ac.za/online-registration** by the end of December.

9 Fly@UP Assist First-Year Awards

More information is available at **www.up.ac.za/student-funding > Fly@UP Assist 1st Year Awards.**

- First-year students who register for studies at UP directly after their final school-year (NSC Grade 12 or equivalent qualification), who meet the award criteria, will be considered.
- Students do not apply for these awards.
- Terms and conditions apply.

UNDERGRADUATE PROGRAMMES

General admission regulations that apply to all prospective students

1. The admission requirements and general information provided in this Faculty brochure are applicable to students who apply for admission to the University of Pretoria with a National Senior Certificate (NSC) or an Independent Examination Board (IEB) qualification.
2. The following persons will be considered for admission to a first bachelor's degree at the University of Pretoria:
   - Candidates who have a certificate that is deemed by the University to be equivalent to the required National Senior Certificate (NSC) with bachelor's degree 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.
3. Grade 11 results are used for the conditional admission of prospective students, but final admission will depend on the NSC (or equivalent) qualification and results.
4. Candidates must also comply with the specific subject and achievement level requirements and the minimum Admission Point Score (APS) for their chosen degree programmes.
5. The APS calculation is done by using the NSC 1 to 7 scale of achievement. It is based on a candidate's achievement in six recognised 20-credit subjects. The highest APS that can be achieved is 42. Life Orientation is a 10-credit subject and is excluded from the calculation when determining the APS. The following subject rating scores are used for calculating the APS for NSC/IEB:

Admission Point Score (APS) Conversion

Rating code	Rating	Marks %
7	Outstanding achievement	80–100%
6	Meritorious achievement	70–79%
5	Substantial achievement	60–69%
4	Adequate achievement	50–59%
3	Moderate achievement	40–49%
2	Elementary achievement	30–39%
1	Not achieved	0–29%

NSC – National Senior Certificate (completed Grade 12 in or after 2008)
IEB – Independent Examination Board

6. Except in cases where modules or programmes require the use of a language other than English, all modules will be presented in English, which is the University's official language of tuition, communication and correspondence.
7. Minimum requirements for admission to the relevant programmes are set out in the minimum admission requirements table in this brochure.
8. Meeting the minimum admission requirements does not guarantee admission into a programme.
9. Applicants with qualifications other than NSC and IEB should refer to the following publication:
   - The *International Undergraduate Prospectus 2026: Applicants with a school leaving certificate not issued by Umalusi* (South Africa)*, available at www.up.ac.za/programmes > Undergraduate > Admission information.
10. **School of Tomorrow** (SOT), **Accelerated Christian Education** (ACE) and **General Education Development** (GED): These qualifications are not accepted at the University of Pretoria.
11. **National Certificate (Vocational)** (NCV) Level 4: The University of Pretoria may consider NCV candidates, provided they meet the exemption for bachelor's status criteria and the programme requirements.

* **Umalusi** accredits South African private providers of education and training as well as private assessment bodies to offer tuition and/or assessment for qualification(s) on the General and Further Education and Training Qualifications Sub-Framework (GFETQSF). Contact Umalusi at info@umalusi.org.za or +27 (0)12 349 1510.

Note: Refer to the General Academic Regulations and Student Rules at www.up.ac.za/yearbooks/home, click on 'General Rules and Regulations'.

APPLICATION AND CLOSING DATES:
- Applications open on 1 April. All study programmes at the University of Pretoria are number-limited. You are encouraged to submit your application as soon as possible after 1 April.
- The closing date for applications for all UP study programmes is 30 June. This excludes the programmes in the Faculty of Veterinary Science which close on 31 May.

APPLICATION STATUS:
- Apply with your final Grade 11 (or equivalent) results.
- Please note that meeting the minimum academic requirements does not guarantee admission.
- Applicants can expect feedback by September at the latest.
- Please check your application status and communication regularly on the UP Student Portal at www1.up.ac.za.
- Final admission will be based on the applicant's final school-year NSC or equivalent results.

UNDERGRADUATE PROGRAMMES

Faculty-specific admission regulations

- Conditional admission to a four-year programme in the School of Engineering is considered only if a prospective student complies with ALL the requirements as indicated in the undergraduate minimum admission requirements table.
- Admission to the five-year Bachelor of Engineering programme [previously called ENGAGE] in the School of Engineering will be determined by the NSC results, achievement level of 5 for English, 65% for Mathematics and 65% for Physical Sciences, and an APS of 33.
- Students may apply directly to be considered for the five-year Bachelor of Engineering programme for all the Engineering disciplines.
- **Second-choice programme:** Should the Admission Point Score (APS) of a prospective student meet the entrance requirements for a programme, and the prospective student is not accepted for the first-choice programme, then an alternative programme should be considered as a second-choice programme.
- **Accreditation:** The various programmes in the School of Engineering are accredited by the Engineering Council of South Africa (ECSA), and the degrees meet the requirements for professional engineers in South Africa. All the programmes in the School for the Built Environment are internationally recognised and accredited by their respective statutory councils, allowing students to register as members of their chosen professions. All the degree offerings in the School of Information Technology (SIT) are highly sought after in the IT industry with a focus on industry-related trends. The curriculum conforms to the highest international standards. We are very proud to be a member of the iSchools Organisation. We are the only IT School in South Africa with Accreditation Board for Engineering & Technology (ABET) rating.

University of Pretoria website www.up.ac.za/ebit

Minimum admission requirements

- 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.

University of Pretoria programme qualification verification

The higher education sector has undergone an extensive alignment to the Higher Education Qualification Sub-Framework (HEQSF) across all institutions in South Africa. In order to comply with the HEQSF, all institutions are legally required to participate in a national initiative led by regulatory bodies such as the Department of Higher Education and Training (DHET), the Council on Higher Education (CHE), and the South African Qualifications Authority (SAQA). The University of Pretoria is presently engaged in an ongoing effort to align its qualifications and programmes with the HEQSF criteria. Current and prospective students should take note that changes to UP qualification and programme names may occur as a result of the HEQSF initiative. Students are advised to contact their faculties if they have any questions.

SCHOOL OF ENGINEERING

Programmes	Minimum requirements for NSC/IEB for 2026			
	Achievement level			APS
	English Home Language or English First Additional Language	Mathematics	Physical Sciences	
Bachelor of Engineering in Chemical Engineering [4 years]	5	6	6	**35**
Suggested second-choice programmes*: Bachelor of Science in Chemistry, Bachelor of Science in Mathematics and Bachelor of Science in Physics				
Careers: Chemical engineers are involved in industrial processes that convert raw materials to products with a higher economic value. This is achieved using physical, thermal, chemical, biochemical and mechanical changes and processes. Chemical engineers apply their specialised knowledge in the petroleum, food, minerals processing, power generation and the paper and pulp industries, water and effluent treatment, and environmental engineering activities, including air pollution control. Like those in other engineering disciplines, chemical engineers are involved in research and development, techno-economic evaluation, equipment and plant design, process control and optimisation, construction, commissioning, operation and management, and the marketing and distribution of the final products.				
Bachelor of Engineering in Civil Engineering [4 years]	5	6	6	**35**
Suggested second-choice programmes*: Bachelor of Science in Chemistry, Bachelor of Science in Mathematics, Bachelor of Science in Physics, Bachelor of Science in Construction Management and Bachelor of Science in Quantity Surveying				
Careers: Civil engineers design, build and maintain constructions such as tower blocks and skyscrapers, dams, canals and pipelines, roads, bridges, tunnels, railways, airports, power stations, towers, waterworks and outfall installations. They are involved in financial modelling, feasibility studies and the management and rehabilitation of large asset portfolios.				
Bachelor of Engineering in Computer Engineering [4 years]	5	6	6	**35**
Suggested second-choice programmes*: Bachelor of Science in Chemistry, Bachelor of Science in Mathematics and Bachelor of Science in 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.				
Bachelor of Engineering in Electrical Engineering [4 years]	5	6	6	**35**
Suggested second-choice programmes*: Bachelor of Science in Chemistry, Bachelor of Science in Mathematics and Bachelor of Science in 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.				

**Please apply for your second-choice programme if your APS and subject requirements of your first-choice programme are not obtained.*

UNDERGRADUATE PROGRAMMES

Programmes	Minimum requirements for NSC/IEB for 2026			
	Achievement level			APS
	English Home Language or English First Additional Language	Mathematics	Physical Sciences	
Bachelor of Engineering in Electronic Engineering [4 years]	5	6	6	**35**
Suggested second-choice programmes*: Bachelor of Science in Chemistry, Bachelor of Science in Mathematics and Bachelor of Science in 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.				
Bachelor of Engineering in Industrial Engineering [4 years]	5	6	6	**35**
Suggested second-choice programmes*: Bachelor of Science in Chemistry, Bachelor of Science in Mathematics and Bachelor of Science in Physics				
Careers: Industrial engineers design, test, implement and manage a wide range of man/machine systems for production and the delivery of services. Organisational matters that require optimisation include site selection and layout of facilities, manufacturing, inventory control, materials handling, supply chain management, quality management, cost control, financial services, maintenance, reliability, computer simulation, information systems, human resources and business law.				
Bachelor of Engineering in Mechanical Engineering [4 years]	5	6	6	**35**
Suggested second-choice programmes*: Bachelor of Science in Chemistry, Bachelor of Science in Mathematics and Bachelor of Science in Physics				
Careers: Mechanical and aeronautical engineers are concerned with power-generating machines and systems such as vehicles, ships, air-conditioners, pebble-bed nuclear reactors, aeroplanes, engines and turbines, robots and biomedical systems. Areas of specialisation include product design and manufacturing (such as the design, testing and improvement of mechanical, electrical, pneumatic and hydraulic systems), marine engineering and naval architecture, biomedical engineering, air-conditioning and refrigeration, aerospace systems and aircraft/missile engineering, vehicle engineering, maintenance engineering and energy management (gas and steam turbines, nuclear power reactors, petrol engines, cooling towers and renewable energy systems).				
Bachelor of Engineering in Metallurgical Engineering [4 years]	5	6	6	**35**
Suggested second-choice programmes*: Bachelor of Science in Chemistry, Bachelor of Science in Mathematics and Bachelor of Science in Physics				
Careers: Metallurgical engineers unlock the riches of deposits of metal ores and minerals and optimise the manufacture and performance of metallic components. You'll find metallurgical engineers where valuable minerals are recovered from ore, where metals are produced from the minerals and where the metals are converted into useful materials as well as into high-performance products. Areas of specialisation include minerals processing, extractive metallurgy, materials engineering and performance, advanced manufacturing processes, including laser-assisted additive manufacturing and welding, as well as failure analysis and forensic engineering.				
Bachelor of Engineering in Mining Engineering [4 years]	5	6	6	**35**
Suggested second-choice programmes*: Bachelor of Science in Chemistry, Bachelor of Science in Mathematics and Bachelor of Science in Physics				
Careers: Mining engineers have a wide range of opportunities, namely mining (mine management, technical management of ventilation, rock mechanics, rock breaking, mineral resources), financial evaluation and management (mine design, financial evaluation of mines, mine feasibility studies, mine environmental impact studies), mining and drilling contracting (mining, tunnelling, shaft sinking, mine development, ore evaluation), mining research, mining equipment design and manufacture, mining marketing and mining administration at national, provincial and international levels.				
Bachelor of Engineering [5 years] This is a five-year programme for all Engineering disciplines. *Previously called ENGAGE*	5	65%	65%	**33**
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 2026. Admission to the five-year programme in the School of Engineering will be determined by the NSC results.				

SCHOOL FOR THE BUILT ENVIRONMENT

Programmes	Minimum requirements for NSC/IEB for 2026			
	Achievement level			APS
	English Home Language or English First Additional Language	Mathematics	Physical Sciences	
Bachelor of Science in Architecture [3 years]	5	4	4	**30**
Will only be considered as first study choice. Selection programme: Selection includes an interview.				
Careers: The Bachelor of Science in Architecture degree programme enables graduates to register with the South African Council for the Architectural Profession (SACAP) as candidate architectural technologists. The qualification is the first step to future registration as a candidate senior architectural technologist or a candidate architect.				
Bachelor of Science in Construction Management [3 years]	5	5	or Accounting 4	**30**
Suggested second-choice programme*: Bachelor of Science in Real Estate				
Careers: After completing the three-year undergraduate degree programme, graduates could enter careers in, among others, construction site management or subcontracting. On completion of the ensuing one-year honours programme, graduates can register as candidate professional construction managers or candidate professional construction project managers and opportunities become much wider, including property development, portfolio management, commercial marketing and managerial positions in the corporate environment.				

**Please apply for your second-choice programme if your APS and subject requirements of your first-choice programme are not obtained.*

UNDERGRADUATE PROGRAMMES

Programmes	Minimum requirements for NSC/IEB for 2026			
	Achievement level			APS
	English Home Language or English First Additional Language	Mathematics	Physical Sciences	
Bachelor of Science in Real Estate [3 years]	5	5	or Accounting 4	30
Suggested second-choice programme*: Bachelor of Commerce in Investment Management				
Careers: Apart from a future in areas such as property investment, property finance and facilities, and property management, further studies to obtain an honours degree in real estate can lead to registration as professional property valuers. Career opportunities encompass the entire spectrum of the property sector, whether as entrepreneurs in the private sector or as employees in the private, government or semi-government sectors.				
Bachelor of Science in Quantity Surveying [3 years]	5	5	or Accounting 4	30
Suggested second-choice programmes*: Bachelor of Science in Construction Management and Bachelor of Science in Real Estate				
Careers: Quantity surveying is the science that delivers specialised financial and contractual services and advice to clients in the built environment, as well as related industries. The three-year undergraduate degree is the first step towards registration as quantity surveyors. The ensuing one-year honours programme leads to registration as candidate professional quantity surveyors. Career opportunities, apart from those in the private, government or semi-government sectors, also exist in the property, banking, insurance, mining and manufacturing industries.				
Bachelor of Town and Regional Planning [4 years]	5	4	-	27
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.				
Careers: Town and regional planners, development practitioners, urban managers, real estate analysts and researchers. While many town and regional planners act as private consultants to the public and private sectors, the majority are employed by government, research agencies (such as the Council for Scientific and Industrial Research (CSIR) and the Human Sciences Research Council (HSRC)), non-governmental organisations, community-based organisations, major financial institutions and property development groups. The qualification will enable graduates to register as professional town and regional planners with the South African Council for Planners.				

SCHOOL OF INFORMATION TECHNOLOGY

Programmes	Minimum requirements for NSC/IEB for 2026		
	Achievement level		APS
	English Home Language or English First Additional Language	Mathematics	
Bachelor of Commerce specialising in Information Systems [3 years]	5	5	30
This programme is administered by the Faculty of Economic and Management Sciences.			
Careers: Data scientist, IT auditor, IT entrepreneur, IT tax specialist, e-business consultant, programmer, business analyst, project manager, CIO, CTO and knowledge manager			
Bachelor of Information Science [3 years]	4	-	28
Suggested second-choice programmes*: Bachelor of Information Science specialising in Publishing, Bachelor of Commerce specialising in Information Systems and Bachelor of Arts			
If specialising in Information Systems is selected as a subject at the first-year level, an achievement level of 5 is required in Mathematics. **Careers:** Information and knowledge managers (manage information and knowledge resources), information or e-commerce specialists (organise, retrieve and add value to information), consultants on information products (services and systems), information brokers (act as infopreneurs and buy and sell information products and services), and system specialists/analysts/technologists (develop information systems).			
Bachelor of Information Science specialising in Publishing [3 years]	5	-	28
Suggested second-choice programmes*: Bachelor of Information Science, Bachelor of Arts specialising in Languages and Bachelor of Arts			
Careers: Entry-level job opportunities include assisting specific role-players in the publishing value chain (such as MDs of publishing houses, commissioning editors, editors and production or marketing managers), market or picture research, copyright negotiations, copy-editing and proofreading, marketing and promotion, distribution and delivery.			
Bachelor of Information Science specialising in Multimedia** [3 years]	4	5	30
Suggested second-choice programmes*: Bachelor of Information Science, Bachelor of Information Science specialising in Publishing, Bachelor of Science in Information Technology in Information and Knowledge Systems and Bachelor of Commerce specialising in Information Systems			
Careers: Programmers, web designers, animation specialists, video editors and electronic artists. The programme prepares candidates for positions at any of the following content producers: paper publications, television, radio, phone technologies and the web. Graduates can become coders and work for programming companies. They can develop skills in their particular areas of interest, such as digital music or video programming, or graphic, games or web development.			
Bachelor of Information Technology in Information Systems [3 years]	5	5	30
Suggested second-choice programme*: Bachelor of Information Science			
Careers: Data scientist, IT auditor, IT entrepreneur, IT tax specialist, e-business consultant, programmer, business analyst, project manager, CIO, CTO and knowledge manager			
Bachelor of Science in Computer Science [3 years]	5	6	30
Suggested second-choice programmes*: Bachelor of Science in Information Technology in Information and Knowledge Systems and Bachelor of Commerce specialising in Information Systems			
Careers: Programmers, systems analysts, systems architects, consultants, database administrators, network analysts and researchers			
Bachelor of Science in Information Technology in Information and Knowledge Systems [3 years]	4	6	30
Suggested second-choice programme*: Bachelor of Science in Computer Science			
Careers: Graduates will differentiate themselves in an application environment by choosing one of the following options: data science, genetics, geographical information systems, IT and enterprises, IT and law, IT and music or software development.			

* *Please apply for your second-choice programme if your APS and subject requirements of your first-choice programme are not obtained.*
** *Possible name change to: Bachelor of Information Science specialising in Interactive Technology*

TAKING TEACHING AND LEARNING TO THE NEXT LEVEL

The Faculty of Engineering, Built Environment and Information Technology (EBIT) at the University of Pretoria attracts students who want to make the world a better place. These are individuals who want to contribute to global challenges by developing solutions that support life in every conceivable discipline. They are focused on the bigger picture: contributing to the world economy and job creation, food security, energy security and sustainable development.

The University's approach to teaching and learning embraces **inquiry-based learning, hybrid learning and community-based learning**. In adherence to this, the Faculty has established a progressive teaching and learning strategy to address several key priorities.

These priorities include increasing overall module pass rates, and ensuring that students are enabled to excel and complete their degrees in the minimum prescribed time. This strategy is entrenched in a culture of excellence, and is focused on bringing about transformation through the curriculum.

It also guides the Faculty's implementation of the University's hybrid model of teaching and learning, and contributes to EBIT's international ranking through its teaching and learning practices.

Lecturers are encouraged to develop creative approaches to transferring knowledge. Their focus is on achieving improved academic performance and preparing students for the Future of Work. In this way, the Faculty ensures that its graduates are not just exceptionally qualified professionals, but people who can make a meaningful contribution in the workplaces they enter by being equipped with empathy and people skills.

An important focus of teaching and learning in the Faculty is to embrace innovative teaching methodologies so as to produce work-ready graduates.

This prompted the Faculty to adopt the concept of immersive learning as an innovative approach to provide students with a deep experience of reality. This exposes them to real-world projects, where they can test multiple solutions in a fail-safe environment, preparing them for the world of work.

It also keeps abreast of the latest technological developments that may affect students' performance, such as Chat GPT. In addition to making students aware of the inherent risks associated with this technology, it is investigating ways in which this platform can be used to support learning by enhancing comprehension and fostering critical thinking skills.

It believes that innovating our tomorrow starts with adopting innovation today.

LOOK OUT FOR OUR **TEAM** AT EXPOS, EXHIBITS, CAREER DAYS AND SCHOOL VISITS.

CONNECT WITH US

JOIN US FOR
EBIT WEEK
6–10 JULY 2025

Do you want to experience first-hand what it is like to be a student in the Faculty of Engineering, Built Environment and Information Technology (EBIT) at the University of Pretoria? Attending our Faculty Open Day gives you the perfect opportunity.

EBIT Week is a four-day holiday programme presented twice a year to learners in Grade 9, 10, and 11. It provides prospective students with a hands-on opportunity to gain information about all the disciplines offered in the School of Engineering, the School for the Built Environment and the School of Information Technology.

Learners are introduced to both the practical and theoretical aspects of the programmes in these schools to help them make sound career choices. They also obtain industry exposure on-site or off-campus.

Prospective students are invited to visit our website for more information on EBIT Week.

SCIENCE AND ENGINEERING
OPEN DAY

Are you a curious person who needs to know why you don't fall off the earth?

YES? Then you need to attend the **OPEN DAY** offered by the Faculty of Engineering, Built Environment and Information Technology; and the Faculty of Natural and Agricultural Sciences at the University of Pretoria.

On 8 March 2025 curiosity will meet innovation.

Who should attend?

- Grade 8 to 12 learners
- Learners passionate about science, engineering, IT and built environment
- Educators

RSVP HERE

STUDENT SUPPORT AND STUDENT LIFE

The Faculty of Engineering, Built Environment and Information Technology (EBIT) at the University of Pretoria emphasises the importance of solid student support systems to ensure that students can complete their qualifications in the minimum prescribed time. Through effective academic support, students have a firm foundation from which to launch their future careers. At the same time, they become aware of the importance of contributing their time and skills to communities that do not have the same advantages they do.

STUDENT LIFE

While the Faculty expects total commitment from its students with regard to individual and group work, it also encourages them to actively participate in student life. This supports the development of well-rounded future leaders.

The University hosts a wide range of student life activities through campus organisations like the Student Representative Council (SRC), Student Culture (STUKU), the Student Sport Committee (SSC) and RAG.

The Faculty's students automatically become part of EBIT House, a student structure that forms part of the SRC sub-structure. EBIT House represents students and acts as a communication channel between the Faculty and its students. EBIT House offers academic, professional and personal development opportunities.

Within EBIT House, students can find a variety of discipline-specific subhouses through which they can become involved in more specialised student activities.

STUDENT SUPPORT

The Faculty has several support structures from which students can benefit. These include a foundation programme and a five-year Bachelor of Engineering programme in all Engineering disciplines that enable students to adjust to university life and cope with academic demands. Faculty student advisors are also on hand to provide ongoing academic support

The Foundation Programme

The University's Foundation Programme focuses on providing educational pathways into science, technology, engineering and mathematics (STEM) fields. Presented on the Mamelodi Campus, qualifying students complete their first year through this programme before entering a mainstream programme.

Bachelor of Engineering [5-year programme]

This is a carefully structured five-year curriculum that is offered in all engineering disciplines. The volume of work is gradually increased over a period of three years. The students work in parallel with the mainstream students, but in smaller groups. They join the mainstream programme from their second academic year of study.

Faculty student advisors

EBIT's faculty student advisors provide assistance with study and examination skills, time management, and support with other co-curricular issues. The qualified faculty student advisors teach students life skills through holistic development interventions so that they can become well-rounded individuals, employers or employees, and responsible citizens. The advisors are all professional counsellors, who can identify issues that may require additional professional support.
Read more: https://bit.ly/46QoSjq

COMMUNITY ENGAGEMENT

The ability of EBIT's students to operate in a complex and multicultural environment is strengthened by the Faculty's focus on community engagement. The **Community-based Project module (JCP)** is an essential part of the curriculum of all the Faculty's undergraduate programmes. It accommodates the need for community service and service-learning projects in a higher education environment. Students are required to dedicate 40 hours of their time to the planning and execution of a community engagement project.

Through this module, students engage with a section of society that is different from their own social background. The goal is for students to develop an awareness of personal, social and cultural values, as well as multidisciplinary and life skills, like communication, interpersonal and leadership skills.

Read more: www.up.ac.za/community-project-module

SCHOOL OF ENGINEERING

The School of Engineering presents programmes in all the major engineering disciplines, with many specialisations offered at postgraduate level. It is ranked 334TH out of more than 10 000 engineering schools in the field of engineering and technology.

The Engineering Council of South Africa (ECSA) has granted accreditation to all programmes offered by the School of Engineering at the University of Pretoria. The School is one of the largest of its kind in the country in terms of student numbers, graduates and research contributions.

Through the relevant, cutting-edge research undertaken in the engineering departments, we provide our students with the necessary training to enable them to make a considerable contribution to engineering in South Africa and abroad.

The School maintains close ties with industry through several research chairs in all its departments. It also pursues innovation in its research centres and institutes.

MAKE AN IMPACT

EBIT focuses its research on impacting global challenges. The School of Engineering actively contributes to research in the following Sustainable Development Goals (SDGs) of the United Nations:

- **SDG 7:** Affordable and Clean Energy
- **SDG 9:** Industry, Innovation and Infrastructure
- **SDG 12:** Responsible Consumption and Production
- **SDG 13:** Climate Action

SCHOOL OF ENGINEERING DEPARTMENTS

- **Department of Chemical Engineering.....11**
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DISCOVER THE CAREER BENEFITS OF A POSTGRADUATE QUALIFICATION:
FIND SPECIALISATIONS

SCHOOL OF ENGINEERING

Department of Chemical Engineering

Bachelor of Engineering in Chemical Engineering

What does the programme entail?

What is chemical engineering?
A chemical engineer, **also known as a process engineer**, finds ways to convert cheap raw materials into more valuable products. Theoretical knowledge of chemistry is required, but the field mostly focuses on the application of intense mathematics to make processes as efficient as possible.

The programme provides students with the necessary foundation to ensure that once they have graduated, they will be able to make creative contributions to the world's ever-increasing needs by:

- Converting natural resources into efficient and useable forms of energy
- Developing more durable, lighter and renewable materials
- Designing more efficient, environmentally friendly processing plants
- Applying biotechnology to convert raw materials into products in a sustainable way
- Designing processes to ensure that limited natural resources, such as water, can be reused
- Leaving a clean and sustainable environment behind for future generations

A solid foundation in chemistry, physics, mathematics and biology is combined with the principles of the conservation of mass, energy and momentum, followed by the application of the economic tenets when designing equipment so as to ensure lucrative processes that will contribute to economic and industrial growth. The programme is aimed at producing graduates who can develop new and innovative processes, ensuring continued growth to satisfy the abovementioned needs.

LEARN MORE

Who are the ideal candidates?

The ideal candidate should:

- Have a passion for mathematics
- Enjoy problem solving
- Enjoy challenges
- Be hard-working
- Be creative and an independent thinker
- Have drive and ambition
- Be a team player

This discipline is exceptionally suited to women and the number of females in our student complement is continuously growing. In the past three years 40% of the Department's graduates were female.

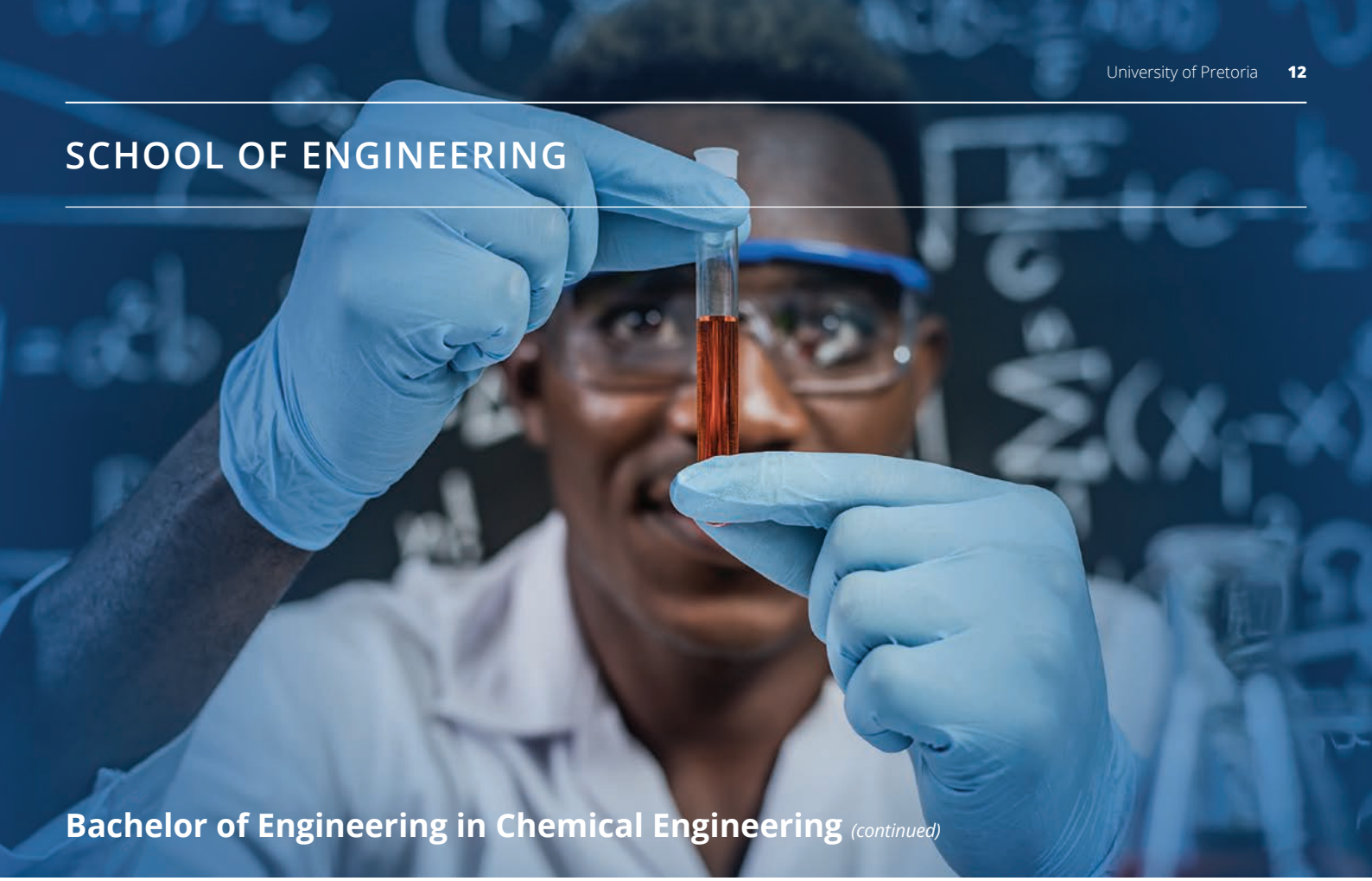
Career opportunities

Chemical engineers are involved in industrial processes that convert raw materials to products with a higher economic value. This is achieved by using physical, thermal, chemical, biochemical and mechanical changes and processes.

Chemical engineers apply their specialised knowledge in the petroleum, food, mineral processing, power generation and paper and pulp industries, water and effluent treatment, and environmental engineering activities, which include air pollution control.

Like those in other engineering disciplines, chemical engineers are involved in research and development, techno-economic evaluation, equipment and plant design, process control and optimisation, construction, commissioning, operation and management, and the marketing and distribution of the final products.

SCHOOL OF ENGINEERING



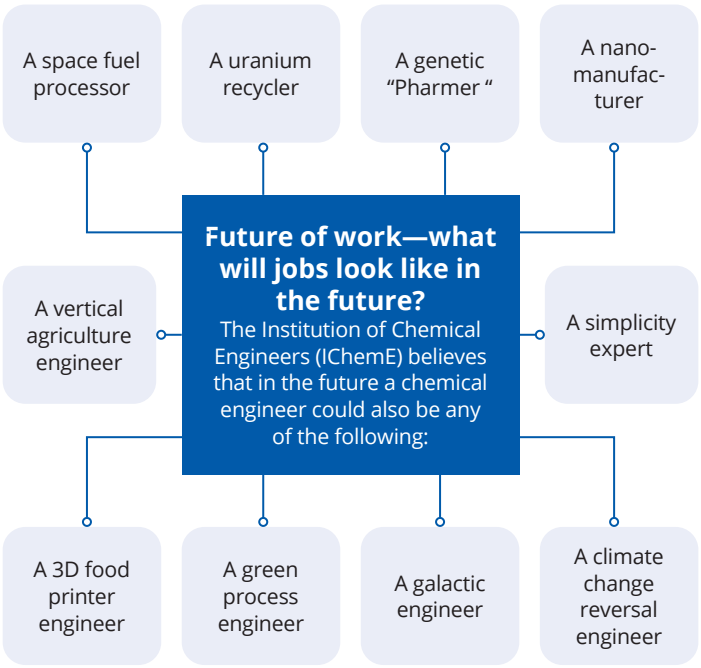
Bachelor of Engineering in Chemical Engineering *(continued)*

Which companies employ our graduates?

Companies where Chemical Engineers are employed in South Africa include:
Sasol, Golder and Associates, Veolia Water, APT, Hoechst SA, Afrox, Bayer, Sucrochem, Shell Chemicals, BASF, Engen Petroleum, Silicate & Chemical Industries, ICI, Rohm and Haas, Omnia, Chemserve, Fine Chemicals Corp (SA Druggists), Noriscel, Henkel, Revertex, CH Chemicals, Chempro, Carbon Trust, McKinsey and Co. and Kimberley Clark.

Postgraduate studies

At the postgraduate level, the Department of Chemical Engineering focuses on the following research themes:
- Sustainable environment and water utilisation processes
- Sustainable and efficient energy processes
- Advanced and applied materials
- Process modelling, control and optimisation (www.up.ac.za/ebit-postgraduate)



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 Chemical Engineering [4 years]	5	6	6	**35**

The suggested second-choice programmes for Bachelor of Engineering in Chemical 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 **Tel** +27 (0)12 420 3011 | **Email** chemeng@up.ac.za
Websites www.up.ac.za/chemical-engineering | www.up.ac.za/school-of-engineering | www.up.ac.za/ebit-postgraduate

SCHOOL OF ENGINEERING

Department of Civil Engineering

Bachelor of Engineering in Civil Engineering

What does the programme entail?

Civil engineers create facilities that improve the quality of people's lives and environments. This process entails research into the proposed facility, followed by the planning, design and construction of the facility and its continued maintenance. Civil engineers design, build and maintain constructions such as tower blocks and skyscrapers, dams, canals and pipelines, roads, bridges, tunnels, railway lines, airports, power stations, towers, waterworks and outfall installations.

Since these facilities have a long lifespan and a direct impact on the community and environment, civil engineers are trained to not only deal with the analytical aspects of design, but to also liaise and consult directly with communities and individuals to design, build and maintain such facilities cost-effectively and to the benefit of humankind.

The development of information technology and computer software that make continuous data collection, mathematical modelling and designs more effective has drastically changed the nature of civil engineering in that it enables civil engineers to concentrate on the more fundamental aspects of developmental work and design.

Information technology and environmental engineering and management increasingly form a greater part of the training, so that a civil engineer can still be provided with a broad-based qualification that offers challenging, fulfilling and highly adjustable career opportunities throughout a career lifespan of between 40 and 50 years.

In 2020, the Department inaugurated its new Engineering 4.0 facility, which includes state-of-the-art laboratories and training facilities to support the training and education of the engineers of the future.

What makes this programme unique?

Our programmes in the School of Engineering are accredited by the Engineering Council of South Africa (ECSA), and our degrees meet the requirements for professional engineers in South Africa.

Who are the ideal candidates?

The ideal candidate needs:
- A passion for continuous learning
- People-management skills
- Good planning skills
- Problem-solving skills

Future of work/careers in the future

In order to work towards smart cities, there is a need to develop researchers with advanced skills in robotics, artificial intelligence, the internet of things and satellite technology.

The civil engineer of the future will need to internalise the fundamentals of materials science, engineering mechanics and dynamics. This knowledge should be combined with an appreciation of the environment and its effects on materials, as well as a sound appreciation of the internet of things (IoT) and Big Data analysis. Another essential skill is the ability to integrate internalised knowledge with searchable information and data, combined with the development of models to describe the interaction between materials, traffic and the environment.

The expected effects of the 4IR on the life of the pavement engineer, for instance, may include changes in pavement structures due to the wandering patterns of autonomous vehicles, changes in materials due to developments in nanotechnology, changes in traffic loading due to vehicle technology developments, the availability of traditional materials such as bitumen, and the need to develop novel road pavement surfacing options.

For more information visit www.up.ac.za/eng4.

Which companies employ our graduates?

Any company involved in development, design, construction and management of infrastructure and related services.

For more information visit
www.careerexplorer.com/careers/civil-engineer.

Where are civil engineers employed?

- Government departments, provincial administrations and municipalities
- Self-employment as a consultant, with the necessary experience and initiative
- Research institutions, state owned enterprises, and infrastructure developers
- Engineering or architectural firms
- Universities of technology and universities
- Construction companies

SCHOOL OF ENGINEERING

Bachelor of Engineering in Civil Engineering *(continued)*

The Chair in Railway Engineering in the Department of Civil Engineering at the University of Pretoria was established in 1996 when Spoornet (now Transnet Freight Rail) initiated a partnership between industry and the university. This partnership revolves around three major aspects: graduate training, continuing education courses for industry, and railway research. At the graduate level, students in Civil Engineering are taught the basics of railway engineering as part of their transportation studies. The Chair currently offers nine short courses delivered by local and international experts in a wide range of railway engineering fields. All courses are registered with ECSA for Continuing Professional Development (CPD) credits, and some are also credit-bearing, such as the coursework honours in transportation engineering.

READ THE FULL STORY

The University of Pretoria (UP), in collaboration with Anglo American, recently established a top-of-the-range mobile soils testing laboratory for the purposes of assessing the strength of samples of mining waste—known as mine tailings or slimes—on site. The laboratory, housed in an eight-ton truck, will enable sensitive soil samples to be subjected to a range of sophisticated tests in the vicinity of the area in which they are recovered. The use of this mobile facility will prevent sample disturbance associated with long-distance transport to laboratories.

READ THE FULL STORY

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 Civil Engineering [4 years]	5	6	6	**35**

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

Contact information Prof Hannes Grabe (Head of Department) | **Tel** +27 (0)12 420 2925 | **Email** hayley.boks@up.ac.za
Websites www.up.ac.za/civil-engineering | www.up.ac.za/school-of-engineering | www.up.ac.za/ebit-postgraduate

SCHOOL OF ENGINEERING

Department of Electrical, Electronic and Computer Engineering

Bachelor of Engineering in Electrical Engineering

What does the programme entail?

Electrical 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). This programme covers the vast and continuously expanding field of energy generation, distribution and utilisation. Practically all technological systems in the world rely on electrical power as a source of energy. An electrical engineer is someone with a talent for introducing alternative and renewable sources of electrical energy into everyday life.

Enormous challenges exist for utilising and storing electrical energy derived from such sources as the sun (solar energy), wind, biomass and water (hydro-energy), and even nuclear energy. In South Africa, pumped storage systems are extensively used, and new systems are being developed. The most cost-effective way of saving electrical energy is to spend a great deal of research and development time and money on sustainable energy-efficient equipment, from electrical machines to geysers and lighting.

There is a shortage of qualified electrical engineers all over the world. An electrical engineer has a thorough understanding of the basic sciences and a good education in the theoretical and practical aspects (including design, installation and maintenance methodology) of electrical engineering.

Who are the ideal candidates?

An electrical engineer needs to be innovative and has to keep abreast of new developments in the field of technology. Many electrical engineers move into management positions very quickly and use analytical, synthesis, managerial and leadership skills to reach the highest levels of corporate management.

What skills do I need?

- Critical thinking
- Complex problem-solving
- Innovative thinking
- Technological knowledge
- Analytical skills

What makes this programme unique?

Our programmes are internationally accredited by the Engineering Council of South Africa (ECSA).

Which companies employ our graduates?

Electrical engineering graduates have access to a wide range of job opportunities. The advances in electrical energy generation and distribution create tremendous opportunities for entrepreneurs in South Africa and in the rest of the world.

Research and development opportunities are available locally at institutions such as Denel, Eskom, the Council for Scientific and Industrial Research (CSIR) and Transnet.

Where are electrical engineers employed?

- Electricity utility companies
- Mining houses
- Municipalities
- Consulting engineers
- Transportation (rail and sea) companies
- Research organisations, locally and abroad

Due to the current worldwide energy crisis, there is an urgent need for environmentally friendly ways to generate power and energy. There is a bright future in renewable energy.

LEARN MORE

SCHOOL OF ENGINEERING

Bachelor of Engineering in Electrical Engineering *(continued)*

Career opportunities

Electrical engineering is prevalent in almost all application fields and technologies where electrical energy is consumed. Every known piece of equipment requires a source of energy—powered by mains, batteries or photovoltaic (PV) cells—and needs the skill of an electrical engineer.

The transport and manufacturing industries are excellent examples of industries in which electrical engineers use their superior skills to design, develop and maintain electrical machines (motors and generators) with control systems for optimal performance. Most ships and trains are electrically powered.

Other applications of electrical engineering include power reticulation in cities, townships, shopping malls and factories. The lighting of indoor and outdoor areas forms the basis of our daily activities. It includes lighting at:

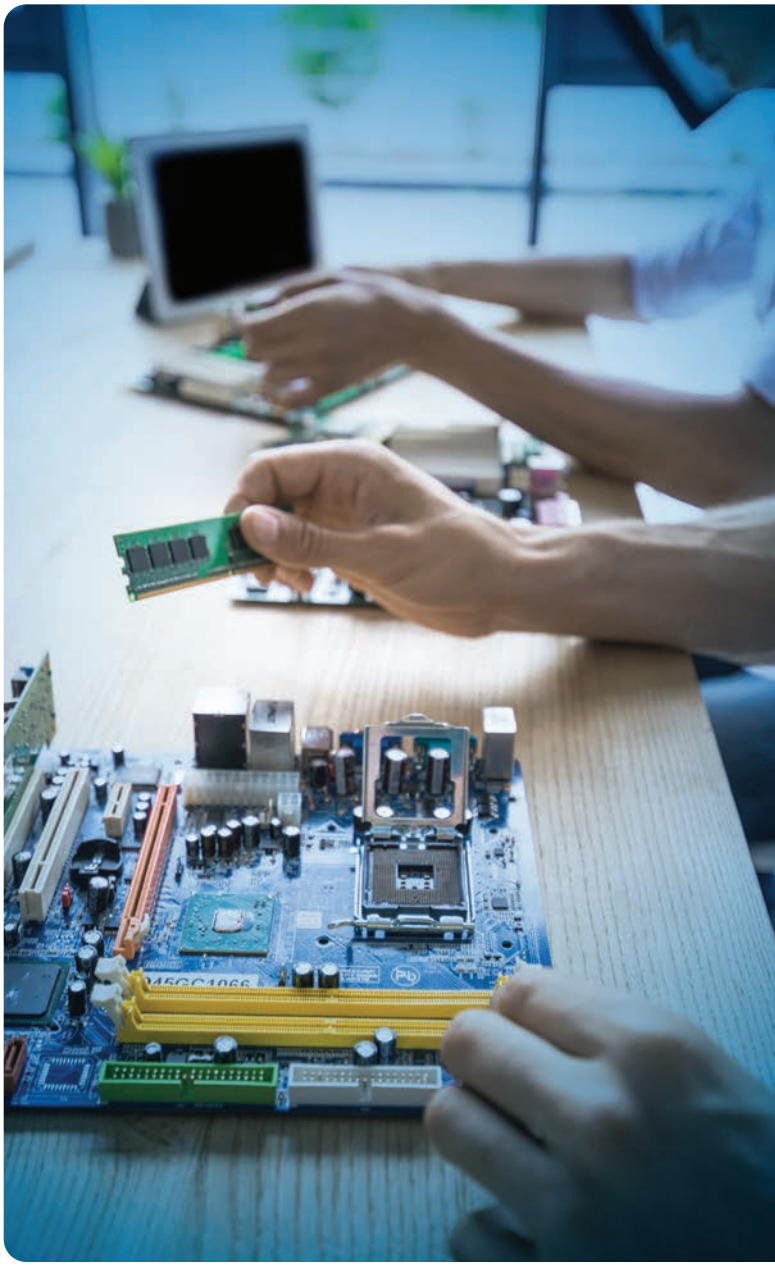
- Sports stadiums
- Street lighting
- Safety and security lighting
- Task and ambient lighting
- Lighting for offices, entertainment and many other specialist applications

Regardless of whether it is medicine, the military, entertainment, sports, education or any other field of technology, electrical engineers will be there to provide the energy and control required.

Electrical engineering aims to change the world by discovering ways to generate, transmit, distribute and utilise electrical energy in an environmentally friendly and sustainable way.

Typical subsystems that may form part of larger electrical systems are:

- Electrical machines of all sizes and shapes
- Power electronics
- Control systems
- Power system components
- Power quality and network stability
- Lamps and lighting
- Power supplies
- Photovoltaic (PV) cells
- Solar geysers
- Space systems
- Robotics and energy management systems



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 Electrical Engineering [4 years]	5	6	6	**35**

The suggested second-choice programmes for Bachelor of Engineering in Electrical 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

SCHOOL OF ENGINEERING

Department of Electrical, Electronic and Computer Engineering

Bachelor of Engineering in Electronic Engineering

What does the programme entail?

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 continuously 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 and upgrading old technologies.

An electronic engineer has a good understanding of the basic sciences and a sound 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 globally makes it essential for electronic engineers to be well prepared for the workforce.

Our electronic engineering degree programme was developed over many years to provide exactly what the industry requires.

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

- Amplifiers
- Transmitters and receivers
- Control and sensor systems
- Antennas
- Power supplies
- Radio frequency (RF) subsystems
- Micro and nanoelectronics and microprocessors
- Digital signal processors (DSPs)

What makes this programme unique?

The academic programme at the University of Pretoria prepares students to become leaders in the field of electronic engineering—with excellent financial rewards and professional satisfaction. This programme is internationally accredited.

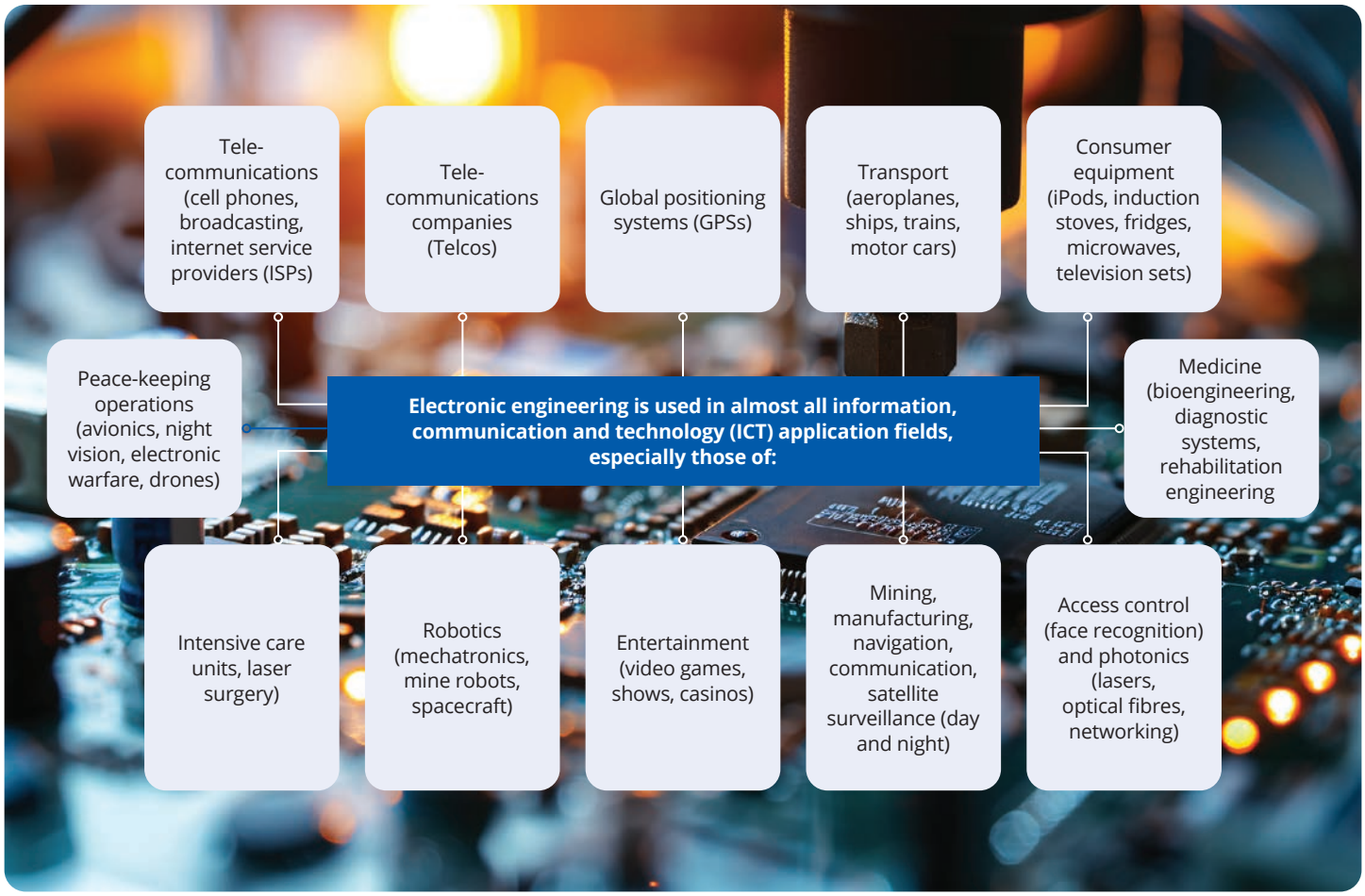
SCHOOL OF ENGINEERING

Bachelor of Engineering in Electronic Engineering *(continued)*

Career opportunities

Electronic engineering graduates have access to a wide range of job opportunities, which include working for companies (large or small) anywhere in the world as employees, or being entrepreneurs or self-employed. Research and development opportunities are available at South African electronics and microelectronics companies and research institutes (such as the CSIR), and at universities all over the world. Graduates in electronic engineering have the opportunity to be innovative, ie to identify real-life problems and to come up with solutions, which they might be able to patent.

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.



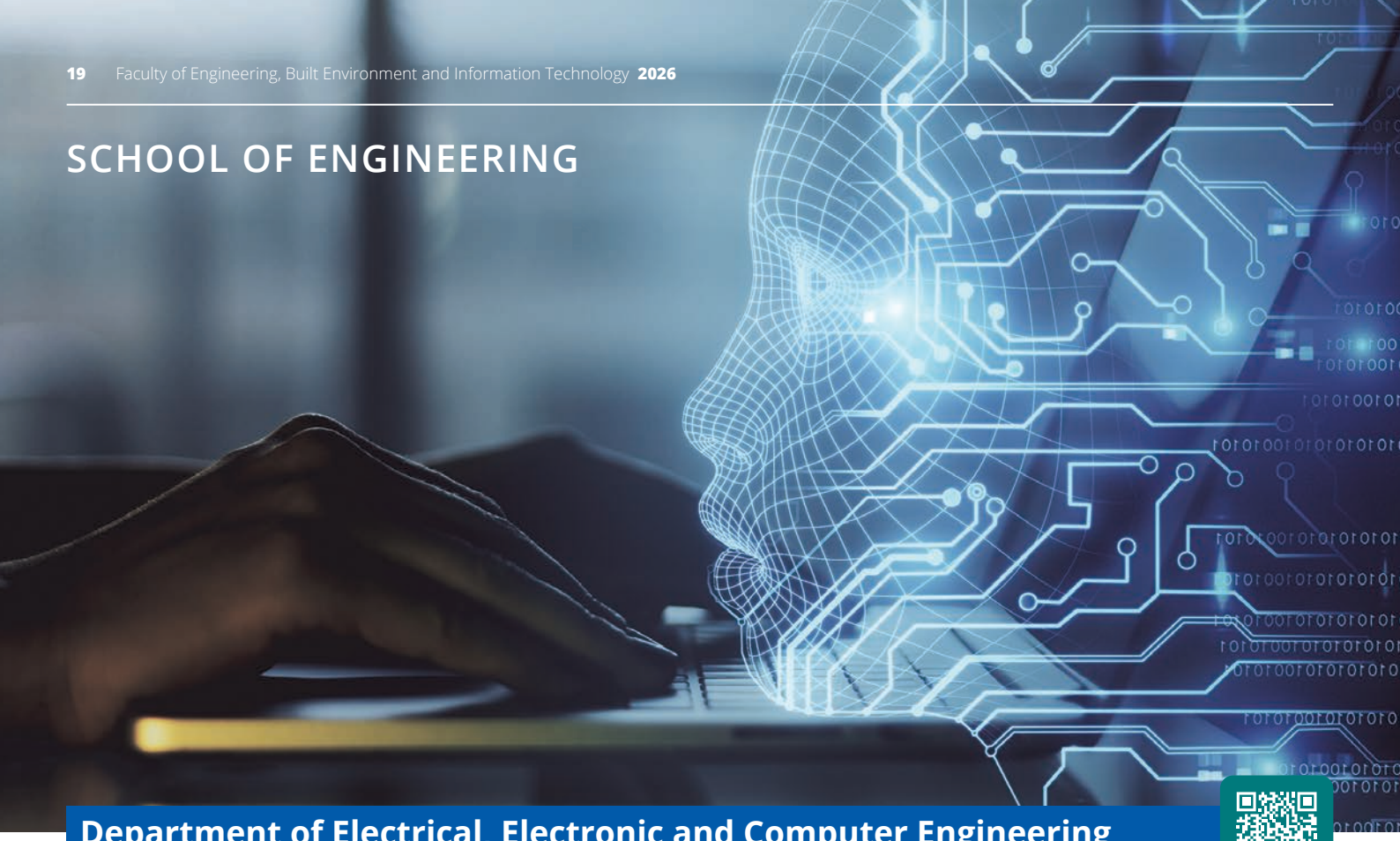
Minimum admission requirements

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 Electronic Engineering [4 years]	5	6	6	**35**

The suggested second-choice programmes for Bachelor of Engineering in Electronic 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

SCHOOL OF ENGINEERING



Department of Electrical, Electronic and Computer Engineering

Bachelor of Engineering in Computer Engineering

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.

SCHOOL OF ENGINEERING

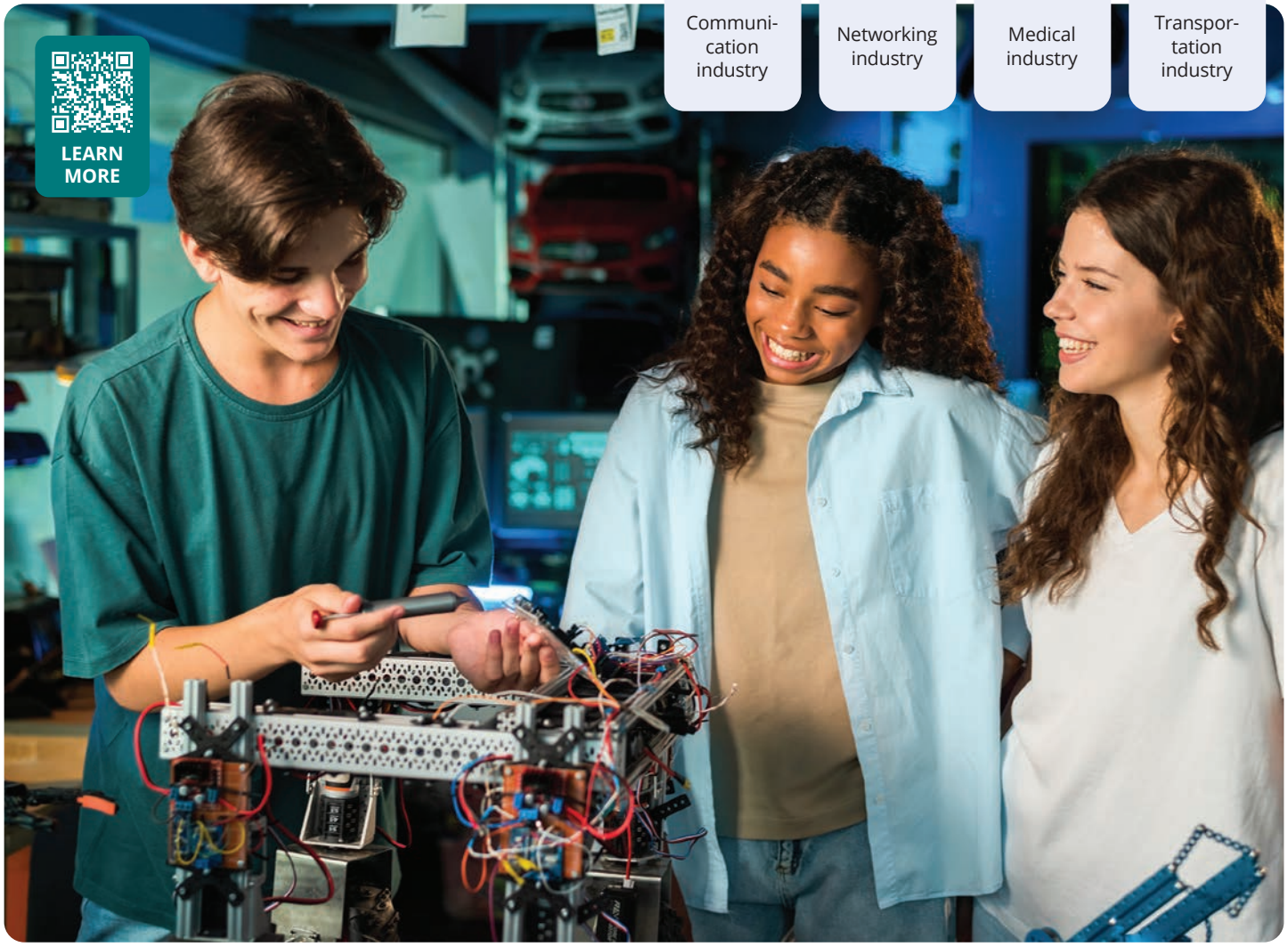
Bachelor of Engineering in Computer Engineering *(continued)*

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

SCHOOL OF ENGINEERING

Department of Industrial and Systems Engineering

Bachelor of Engineering in Industrial Engineering

What makes this programme unique?

Industrial engineers are generally responsible for analysing, designing, testing, planning, implementing, operating, managing and maintaining integrated systems. These systems consist of people, capital, materials, equipment, information and energy, and are aimed at increasing productivity. Industrial engineers integrate the contributions of all the other engineering disciplines into a final, functional and marketable product or service.

Elements that require optimisation include the following:

- Site selection and the layout of facilities
- Manufacturing
- Inventory control
- Materials handling
- Supply chain management
- Quality management
- Cost control
- Financial services
- Maintenance
- Reliability
- Computer simulation
- Information systems
- Human resources
- Business law

Typical activities of an industrial engineer are:

- Designing, implementing and managing production processes and equipment
- Designing and improving plant layout
- Designing and improving business processes
- Functional design and implementation of information systems
- Developing and implementing performance criteria and standards
- Providing support with decision making
- Scheduling activities
- Analysing systems with the aid of mathematical and simulation models
- Undertaking economic evaluations of alternatives
- Integrating new systems in an existing environment

Who are the ideal candidates?

The ideal candidate needs:

- Problem-solving skills
- Critical thinking skills
- Project management skills
- Communication and organisation skills

Are these the types of questions you want to get the answers to?

How do we get products to the customer **faster** and **cheaper**?

How do we get passengers to their destination **safely** and **on time**?

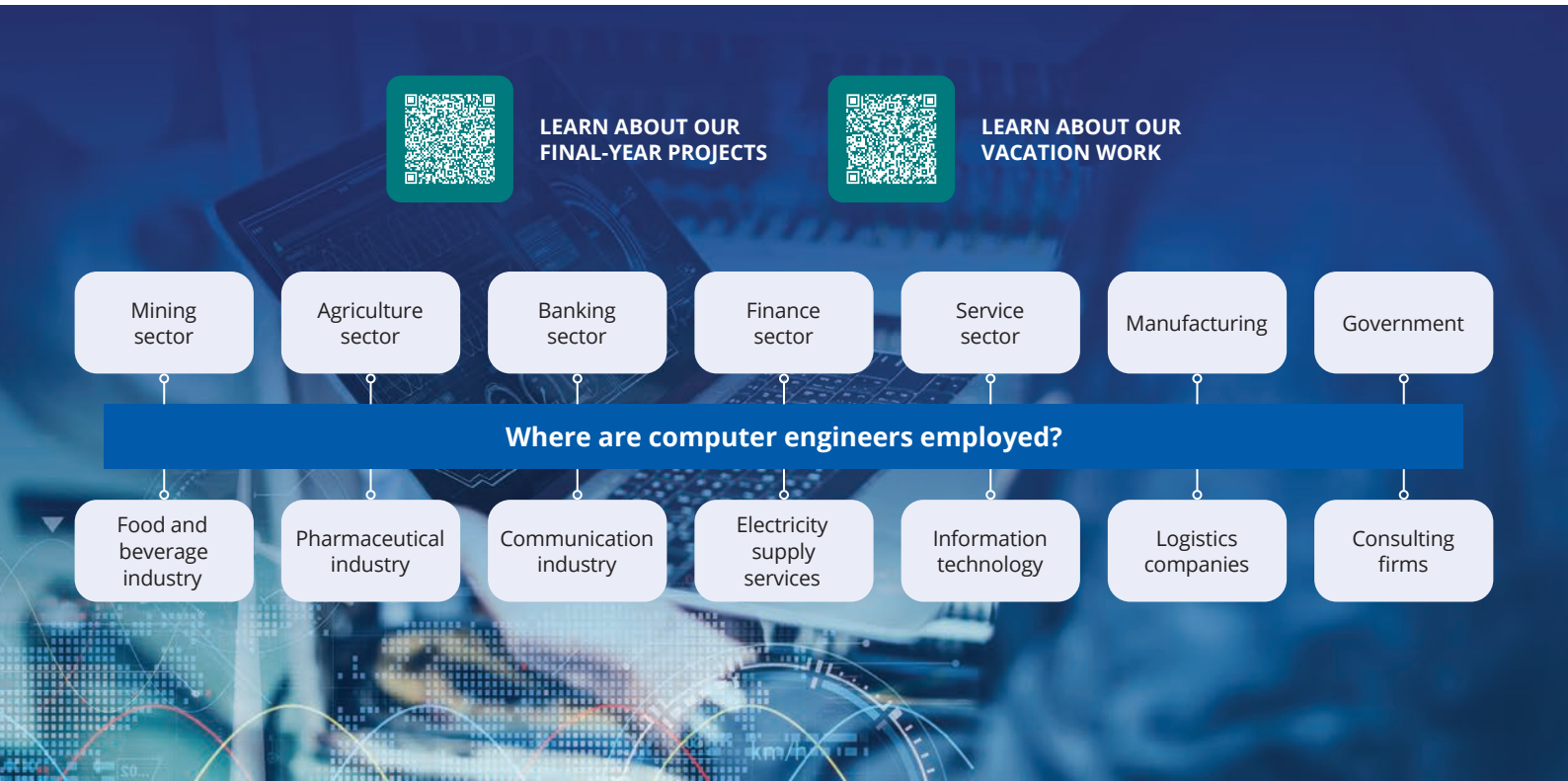
What data do we need for **effective** decision making, and how can we source it?

How do we turn this data into actionable information that helps us make **tough decisions**?

How should we manage inventory levels of products in a warehouse or store to **minimise cost**?

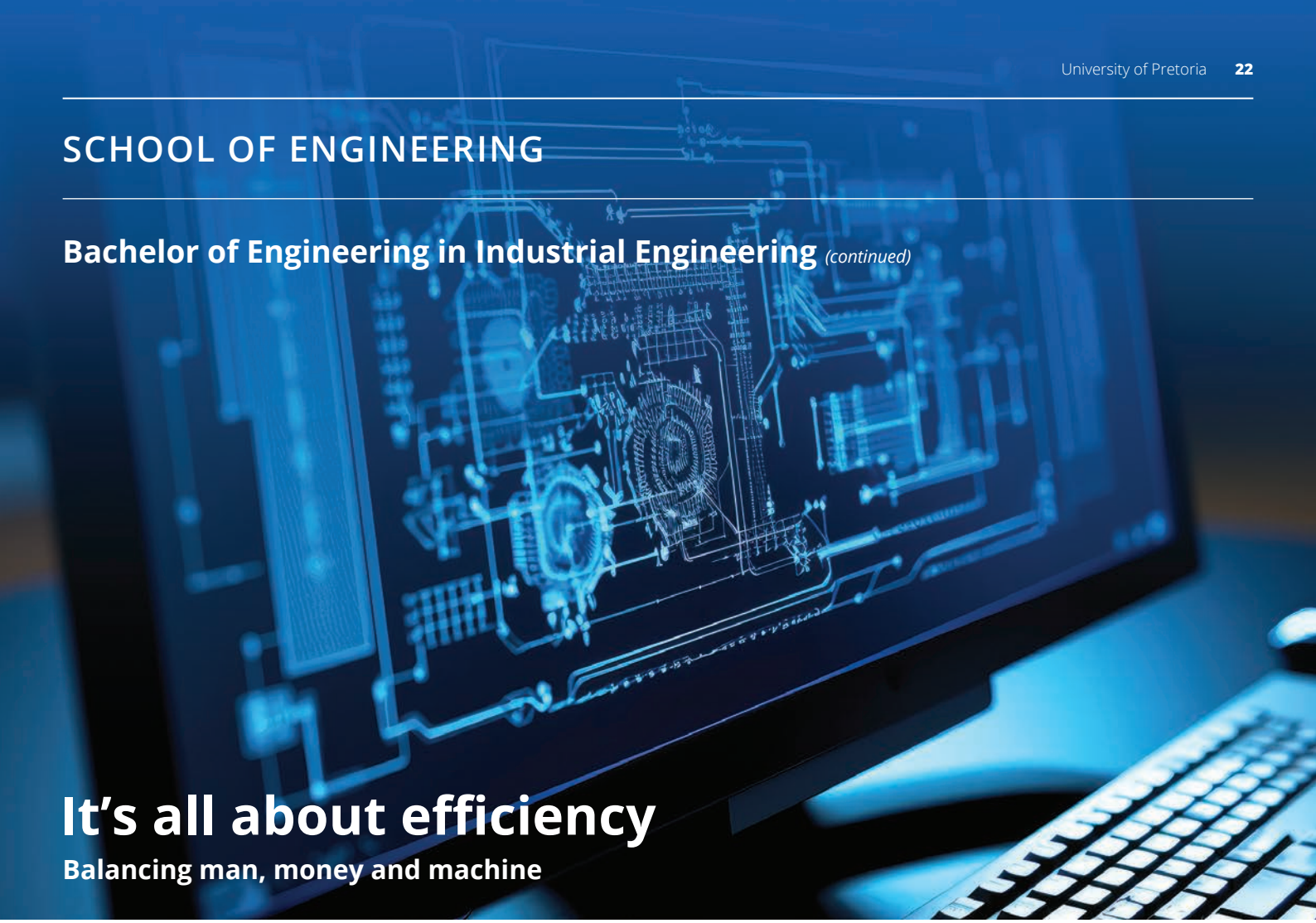
What is the **best** factory layout and handling system for the movement of parts in a factory?

How can we best route vehicles through a city to **minimise** travel time?



SCHOOL OF ENGINEERING

Bachelor of Engineering in Industrial Engineering *(continued)*



It's all about efficiency

Balancing man, money and machine

What makes this programme unique?

The programmes in the School of Engineering are accredited by the Engineering Council of South Africa (ECSA), and our degrees meet the requirements for professional engineers in South Africa.

Examples of the academic modules you will encounter in your studies:

- General Engineering (e.g. Manufacturing and Design, Statistics, Mechanics)
- Industrial Engineering (e.g. Simulation Modelling, Logistics, Information Systems Design, Facilities Planning)
- Mathematics (e.g. Calculus, Linear Algebra, Numerical Methods)
- Sciences (e.g. Physics, Chemistry, Social Sciences)
- Programming
- Financial Management and Management Accounting
- Labour Relations and Business Law
- Workshop Practice and Practical Training

Why choose the University of Pretoria

- The Department of Industrial and Systems Engineering is the first and still the **largest** industrial engineering school in South Africa.
- The School of Engineering has been ranked **#1 in Africa** by the US News and World Report.
- The University was ranked in the top **285 universities worldwide** for engineering and technology in the QS World University Rankings.

Interesting facts

Our academic staff are specialists in their respective fields. Alumni of the Department of Industrial and Systems Engineering have made major contributions in several spheres of society. They also occupy important positions in organisations throughout South Africa and across the globe. The demand for industrial engineers currently exceeds the supply, and young graduates are virtually assured of employment.

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 Industrial Engineering [4 years]	5	6	6	**35**

The suggested second-choice programmes for Bachelor of Engineering in Industrial 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 Sarma Yadavalli (Head of Department) | **Tel** +27 (0)12 420 2979 | **Email** sarma.yadavalli@up.ac.za
Websites www.up.ac.za/industrial-and-systems-engineering | www.up.ac.za/school-of-engineering | www.up.ac.za/ebit-postgraduate

SCHOOL OF ENGINEERING

Department of Materials Science and Metallurgical Engineering

Bachelor of Engineering in Metallurgical Engineering

What does the programme entail?

South Africa is not only blessed with the world's largest deposits of platinum, chromium, vanadium, and manganese but also has extensive reserves of gold, iron, lead, zinc, copper, nickel, coal, and diamonds. The minerals industry contributes 50% of South Africa's exports and is one of the largest employers in the country. Metallurgical engineers play a key role in the production of minerals and metals and help process metals into final products with added value. This ensures that the maximum income is generated in local and international markets and that components made from metals and other materials are designed to perform optimally in all aspects of modern life.

Career opportunities

Metallurgical engineers unlock the riches of deposits of metal ores and minerals and optimise the manufacture and performance of metallic components. You'll find metallurgical engineers where valuable minerals are recovered from ore, where metals are produced from the minerals and where the metals are converted into useful materials as well as into high-performance products. Areas of specialisation include minerals processing, extractive metallurgy, materials engineering and performance, advanced manufacturing processes, including laser-assisted additive manufacturing and welding, as well as failure analysis and forensic engineering.

Careers include production engineers, plant managers, consultants, forensic engineers and researchers.

What makes this programme unique?

As the leading metallurgical engineering department in South Africa, the Department of Materials Science and Metallurgical Engineering at the University of Pretoria currently plays a prominent role in the education of metallurgical engineers for the South African metallurgical and mining industries. These graduates are highly sought after. The department also attracts professionals from other engineering disciplines who seek to enhance their skills and knowledge in this field. As a result, many professionals enrol in the department's postgraduate programmes to enhance their skills in the thriving local and international minerals industry.

Unconditional accreditation by the Engineering Council of South Africa (ECSA) is a confirmation of the quality of undergraduate teaching in the department, and the degree currently enjoys international recognition. Staff members consult with and conduct research for industry and maintain close contact with local metallurgical industries to ensure that teaching and research align with industry needs. Sophisticated research equipment is available in the department and in the Industrial Metals and Minerals Research Institute (IMMRI), which is situated in the department. Bursaries for metallurgical engineering students are available from various industry partners (see the website for additional information: www.up.ac.za/metal).

Students are supported in several ways by the Department. To help them to overcome problems, a member of staff is appointed as a mentor for each student year group. For first-year students, in particular, there is an intensive mentorship programme. The normal programme runs over four years, but we also offer a five-year Bachelor of Engineering programme in all Engineering disciplines for students who require additional support and mentoring.

The Metallurgical Student Association is elected by the student body and organises social and sports functions.

Minerals processing
Processing the ore to release and concentrate the valuable minerals contained in it.

Extractive metallurgy
The processing of mineral concentrates to metals through pyrometallurgy (including smelting) or hydrometallurgy (including leaching) as refining steps.

The three main fields of specialisation in metallurgical engineering

Materials production, performance and integrity
This field entails the development of new alloys, the production of useful materials and products from raw metals, including forming through casting, 3D printing using lasers and joining through welding. The forensic investigation of failures is also of great importance.

SCHOOL OF ENGINEERING

Bachelor of Engineering in Metallurgical Engineering *(continued)*

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 Metallurgical Engineering [4 years]	5	6	6	**35**

The suggested second-choice programmes for Bachelor of Engineering in Metallurgical 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 Natasia Naudé (Head of Department) | **Tel** +27 (0)12 420 3182/4208 | **Email** natasia.naude@up.ac.za
Websites www.up.ac.za/metal | www.up.ac.za/school-of-engineering | www.up.ac.za/ebit-postgraduate

SCHOOL OF ENGINEERING

Department of Mechanical and Aeronautical Engineering

Bachelor of Engineering in Mechanical Engineering

What does the programme entail?

The undergraduate programme focuses on the establishment of a broad knowledge of engineering, and includes topics such as dynamics, strength of materials, thermodynamics, fluid mechanics and design. Mechanical and aeronautical expertise is required for designing and manufacturing products and services, such as the provision of electricity and water, transport (road, rail and air), mining activities, mechatronics and air conditioning.

Thermal power systems, heat exchangers, cooling and refrigeration systems, ventilation systems, etc.

Manufacturing technologies that include the use of lasers, precision machinery

What is mechanical engineering?
Mechanical engineering is concerned with the **design, manufacture and operation** of components, devices or systems such as:

Automobiles, aeroplanes and other vehicles

Robotics, mechatronics and electronic control of machinery

Digitisation of physical assets through sensing, computing and data science

Why choose the University of Pretoria

The programmes of our School of Engineering are all accredited by the Engineering Council of South Africa (ECSA), and the School has been ranked **#1 in Africa** by the US News and World Report. Our mechanical engineering programme has been ranked **#1 in South Africa** in the Shanghai Rankings.

The Department of Mechanical and Aeronautical Engineering offers a unique learning environment for engineering students with opportunities for practical application of theoretical knowledge in activities like the Tuks Baja team and the AREND project. We also host the only off-road vehicle dynamics group in the country.

International collaboration

The University of Pretoria is always looking for opportunities to collaborate with other innovative institutions around the world. One such an initiative is our third-year exchange programme with Massachusetts Institute of Technology (MIT) in the USA (2023–2028). The exchange programme makes it possible for students from the Department to study at MIT for a year, and for MIT students to study at the University of Pretoria for a year.

Who are the ideal candidates?

The ideal candidate should be resilient to work pressure, and flourish when confronted with new problems that need to be solved effectively and efficiently. The following skills are required to achieve this:

- Creativity
- Critical thinking
- Fundamental understanding
- Mathematical rigour
- Teamwork
- Adaptivity

Oral, verbal and graphical communication abilities are essential for a technically diverse team of individuals.

Career opportunities

Mechanical engineers are employed in almost all sectors of the economy, for example in the chemical industry, mining, manufacturing, processing, vehicle/aircraft manufacturing and design, defence and in the aeronautics industry. Possible careers are:

- Aerospace engineer
- Automotive engineer
- Maintenance engineer
- Design engineer
- Mathematical and computational modeling engineer
- Data science engineer

Mechatronics is also offered at the postgraduate level. Should you consider a degree specifically in mechatronics, it may be worthwhile remembering that although your knowledge will become broader and more multidisciplinary, you may end up lacking the in-depth knowledge gained by completing the more traditional undergraduate degrees (such as Mechanical Engineering) and specialising later, or simply working as the mechanical engineer in a multidisciplinary team.

TuksNovation

TuksNovation acts as a catalyst for the development of business technology clusters to positively impact on the South African economy. Innovations arising from research can lead to new product development.

TuksNovation provides technology development and entrepreneurship support, from the prototype to the commercialisation growth stages, to ensure that the technology is fully developed, and addresses a relevant market need. A virtual incubation programme focuses on technology and techno-entrepreneurship skills, while an acceleration programme focuses on commercialisation and business growth.

SCHOOL OF ENGINEERING

Bachelor of Engineering in Mechanical Engineering *(continued)*

Department in a nutshell

We are the largest producer of mechanical engineering graduates in the country.

200+ graduates annually since 2017

18% female final-year research project students

Alumni of the Department have made valuable contributions in several spheres of society and occupy important positions in organisations throughout South Africa. Others are employed overseas.

LEARN MORE

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 Mechanical Engineering [4 years]	5	6	6	**35**

The suggested second-choice programmes for Bachelor of Engineering in Mechanical 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 Schalk Kok | **Tel** +27 (0)12 420 3104 | **Email** mecheng@up.ac.za
Websites www.up.ac.za/mechanical-and-aeronautical-engineering | www.up.ac.za/school-of-engineering | www.up.ac.za/ebit-postgraduate

SCHOOL OF ENGINEERING

Department of Mining Engineering

Bachelor of Engineering in Mining Engineering

What does the programme entail?

As a profession, mining engineering encompasses a broad spectrum of engineering work—from mine evaluation to industrial control. For instance, mining engineers may assess a new mining project as soon as the geological confirmation of a newly discovered mineral deposit has been completed. If such a mineral deposit is found to be viable, mining engineers will design the mine to exploit the mineral deposit. Where the mineral deposit is close to the surface, an opencast mine is preferred, but for deeper deposits, an underground mine will be planned. Mining engineers will coordinate the construction of such a mine and bring it to the stage where it starts producing.

A typical mine has a lifespan of 15 to perhaps 100 years. The design of the mining excavations, with their equipment and services, the planning of all the activities and the management of the operation at all levels is the responsibility of the mining engineer. This professional will also provide expert advice on rock breaking, blasting, materials transport systems, mine planning and scheduling, mechanical tunnel development, mine climate control, rock mechanics, support of excavations, devising mining methods, as well as the design and development of equipment.

What makes this programme unique?

The Mining Engineering Leadership Academy
Our students have a sound academic foundation.
To that, we add skills such as self-awareness, communication skills and the ability to work in multi-disciplinary settings and groups.

The philosophy of the Leadership Academy programme is to expose final-year students to experiential situations, which teaches them intrapersonal and interpersonal skills. Psychometric assessments and real-life case studies hone well-rounded leadership habits.

The University of Pretoria provides excellent facilities to our Mining Engineering students and these include access to the:
- Kumba Mine Design Laboratory
- Kumba Virtual Reality 3D360 cylinder
- Kumba Virtual Reality 3D theatre
- ARM Laboratory
- Virtual Blasting Wall
- The Metallurgical, civil and mechanical engineering laboratories on the Hatfield Campus

Who are the ideal candidates?

The aptitudes and skills of successful engineers include the following:
- Be able to visualise objects in three dimensions
- Have good health and stamina
- Have mathematical and scientific ability
- Be curious
- Be disciplined
- Be passionate about mining
- Have creativity and initiative
- Be responsible
- Have self-confidence
- Have organisational skills
- Command respect
- Maintain a cool head and take charge of a situation
- Have listening, speech and writing skills

Career opportunities

The mining industry is one of the largest industries in South Africa, producing more than **60 different minerals in over 1 000 mines and quarries**.
Mining amounts to one eighth of the gross national product.

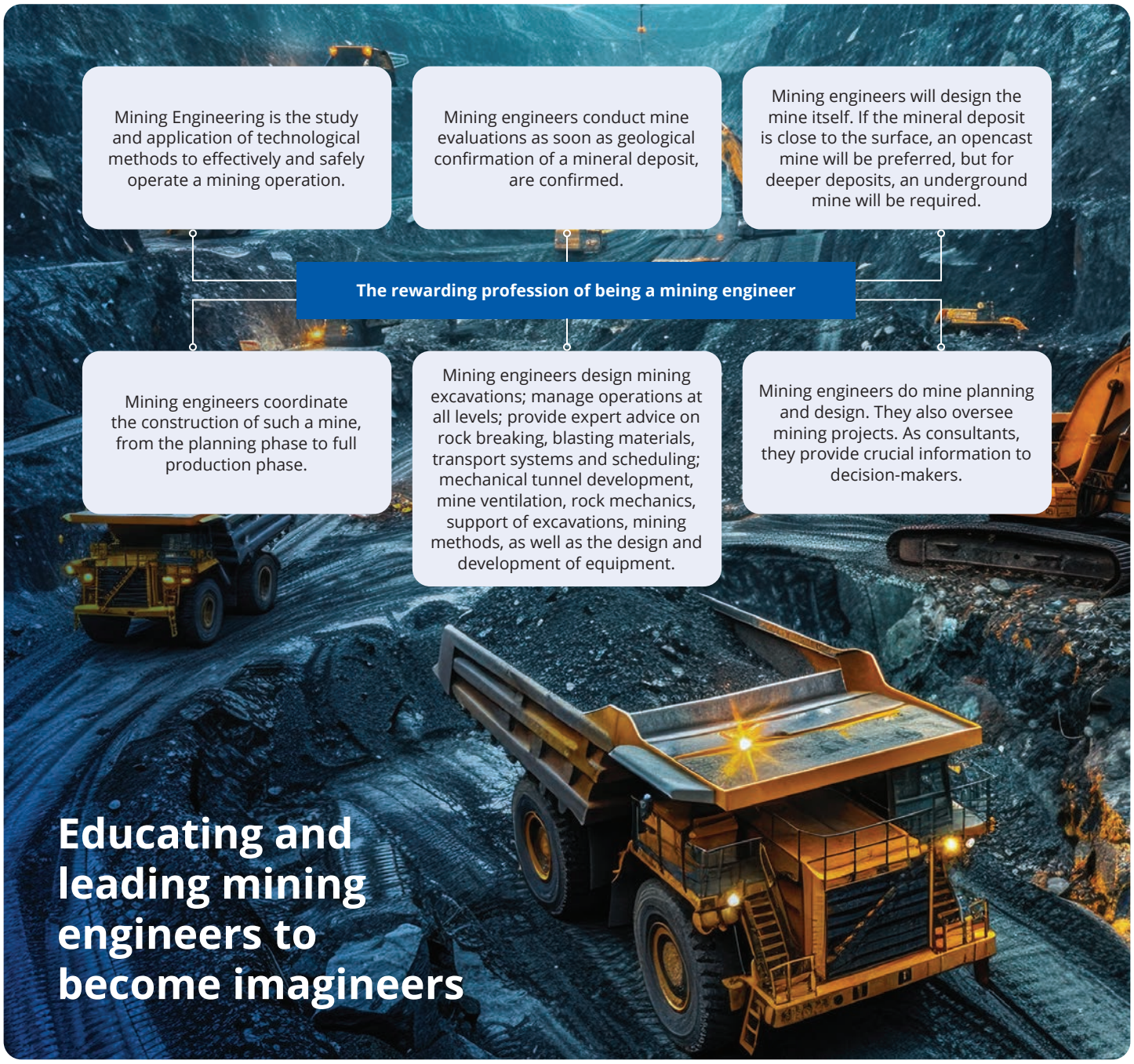
Mining engineers are employed at a wide range of companies, both locally and internationally. They are responsible for the effective, safe and profitable operation of mining undertakings.

Mining engineering careers include that of rock engineer; mine ventilation engineer; explosives engineer; rock breaking engineer; drill and blast engineer; project engineer; mine planner and environmental engineer to mention but a few.
- Mining engineers are mining experts and they are engineers, who have a background in geology as well as in civil, mechanical and electrical engineering.
- Mining engineers research mining-related topics in order to improve safety and find better ways to extract minerals.
- Mining engineers also work in the banking sector and at the Stock Exchange, where they specialise in risk analysis and investment.
- Mining engineers are also needed for sales and marketing as well as business development of mining companies or supporting industries.

There is a shift in mining as it progresses towards mechanisation and automation through robotics. Mechanisation requires in-depth engineering skills to support and operate mobile mechanised equipment.

SCHOOL OF ENGINEERING

Bachelor of Engineering in Mining Engineering *(continued)*



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 Mining Engineering [4 years]	5	6	6	**35**

The suggested second-choice programmes for Bachelor of Engineering in Mining Engineering are Bachelor of Science in Chemistry, Bachelor of Science in Mathematics and Bachelor of Science in Physics.

Contact information **Tel** +27 (0)12 420 3763 | **Email** abea.kgatshe@up.ac.za
Websites www.up.ac.za/mining-engineering | www.up.ac.za/school-of-engineering | www.up.ac.za/ebit-postgraduate

SCHOOL OF ENGINEERING

Bachelor of Engineering

Five-year programme for all Engineering disciplines

What does the programme entail?

An engineering degree is very demanding. The workload is high, the pace is fast and the modules are academically challenging. Many students also face challenges regarding background knowledge in mathematics and physical sciences, academic literacy and information technology. They may not have the study skills to cope with the mainstream four-year programme.

Furthermore, many students − even some of those who attended high-performing schools − struggle with the transition to university life due to the very large first-year classes, freedom from strict discipline and many social activities.

For this reason, the School of Engineering offers a five-year programme which is available in all the engineering disciplines. It provides a carefully structured curriculum that helps students adjust to university life and cope with the academic demands of engineering studies.

In the five-year programme, the volume of work is gradually increased while the support provided is decreased over a period of three years. However, the workload − the time students must spend on their studies − is high from the very beginning. Therefore this programme is not for students who do not want to work!

What makes this programme unique?

Parallel support is offered through additional modules in the first and second years of the five-year Bachelor of Engineering programme.

Who are the ideal candidates?

Students may apply for the Bachelor of Engineering [five-year programme] if:

- their marks in the National Senior Certificate meet the minimum admission requirements for the five-year programme; or
- their marks in the National Senior Certificate meet the minimum admission requirements for the four-year programme, but they would like more support.

Structure of the programme

In the five-year Bachelor of Engineering programme, students take the same first-year modules and attend the same classes as the four-year degree programme students, but the modules are spread out over two years.

In addition, for every 16-credit 100-level (first-year) module, students also take an 8-credit augmented additional module. For example, in the first year, students take the same mathematics modules (16 credits) as the four-year degree programme students, as well as some additional mathematics modules (8 credits).

In the additional modules, students are divided into groups of approximately 50 members to work on strengthening their problem-solving and other cognitive skills, developing conceptual understanding and acquiring the background knowledge needed for both the additional module and the corresponding four-year module.

In the first year of study, students take the basic sciences modules that form the foundation of engineering, namely chemistry, physics and mathematics. However, computer engineering students take mechanics instead of chemistry. Students in the five-year Bachelor of Engineering programme also take Professional Orientation, which provides an introduction to information technology skills and practice, and develops their academic and communication skills. Furthermore, first-year engineering students are required to take a module in humanities and social sciences − the HAS module.

In the second year, students take all the introductory (100-level) engineering modules, as well as a compulsory additional module for each. They also take one 200-level mathematics module per semester. In the third year, they take the remaining 200-level modules, but since they have already completed two 200-level mathematics modules, their workload is slightly lighter than that of the four-year degree programme students.

For the last two years of their studies, students in the five-year Bachelor of Engineering programme follow exactly the same programme as the four-year degree programme students. All the prescribed components of the five-year programme are compulsory, as is attendance of all lectures and discussion classes in the modules.

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 [5 years] This is a five-year programme for all Engineering disciplines. *Previously called ENGAGE*	5	65%	65%	**33**
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 2026.
Admission to the five-year programme in the School of Engineering will be determined by the NSC results.

Contact information Prof Eric Njoroge (Programme Coordinator: Five-year Programme) | **Tel** +27 (0)12 420 2668 | **Email** eric.njoroge@up.ac.za
Websites www.up.ac.za/academic/engage | www.up.ac.za/school-of-engineering | www.up.ac.za/ebit-postgraduate

I AM EBIT: INDUSTRIAL ENGINEERING

The University of Pretoria's industrial engineering graduates thrive in industry

Kutlwano Mabeba

Kutlwano Mabeba is a business analyst at Lombard Insurance who graduated with a degree in industrial engineering from the University of Pretoria (UP) in 2019. She is currently enrolled for a master's degree in innovation management with the university's Graduate School of Technology Management (GSTM).

What attracted her to this field of study was its potential to unlock opportunities in a diverse range of industries. 'You can branch into literally everything and find work in any discipline that has a problem that needs to be solved,' Mabeba says. The principles she learnt during her studies and the exposure to industry problems she received can be applied to any company in any conceivable field.

Mabeba studied with a bursary from the global transportation company DSV, and she was fortunate to start working for the organisation immediately after graduation, as she had also completed vacation work at the company. She spent three years with the company, gaining experience as a logistics engineer.

The work she is currently doing as a business analyst at Lombard Insurance is the total opposite of what she did at DSV. Here, she forms part of a team that solves business problems. She describes her work as an industrial engineer as continually improving and optimising processes to solve problems, as there is always a better, more efficient way of doing things. She is excited that her qualification has enabled her to identify opportunities for continuous improvement.

Mabeba has also experienced the value of studying at an internationally recognised institution such as UP. She explains that some companies, especially the company at which she started her career as an industrial engineer, strongly prefer to employ graduates from UP's Faculty of Engineering, Built Environment and Information Technology as they have a strong work ethic. 'This gives graduates from UP a differentiating position in the workplace and enhances their credibility in industry,' she notes.

She would definitely recommend industrial engineering as a career path for prospective students, as 'it gives one the opportunity to tap into fields as diverse as data management, logistics, and banking, and there will always be a need to improve systems and processes to ensure business sustainability'.

Reflecting on her postgraduate studies in innovation management, Mabeba admits that she is being challenged in ways she has never been challenged before. She is learning valuable concepts, and the programme is shaping the way she thinks. She loves how she is learning to question things and believes that it will improve her value to her current and future employers.

I AM EBIT: CHEMICAL ENGINEERING

Young African researcher seeks to reduce pollution from industrial effluents

Hilda Dinah Kyomuhimbo

Hilda Dinah Kyomuhimbo, a PhD student in the Department of Chemical Engineering in the University of Pretoria (UP)'s Faculty of Engineering, Built Environment and Information Technology, has been awarded the Schlumberger Foundation's Faculty for the Future fellowship for her doctoral research.

Her research project, supervised by Prof. Hendrik Brink, entails incorporating nanocomposites with desirable properties to enhance the applicability of the laccase enzyme to treat effluents from industries, especially the textile, pharmaceutical, and paper industries, to reduce pollution.

Research with impact

Kyomuhimbo explains that her research will focus on the immobilisation of the laccase enzyme on metal and metal oxide nanoparticle polymer composite beads for its application in biosensors and pollutant remediation. 'My study aims to improve the lifespan and reusability of the laccase enzyme by attaching it to composites of metal and metal oxide nanoparticles and polymers,' she says.

Laccase is a popular enzyme in degrading organic pollutants, Kyomuhimbo explains, but it is limited by its poor stability and non-reusability. Incorporating nanocomposites with desirable properties will, therefore, enhance the applicability of the enzyme in environmentally relevant conditions. The improved enzyme can then be used to treat effluents in industrial wastewater, thereby minimising pollution. 'It will also be incorporated on a biosensor electrode to detect organic pollutants in freshwater systems such as rivers,' she says.

Rewarded for hard work

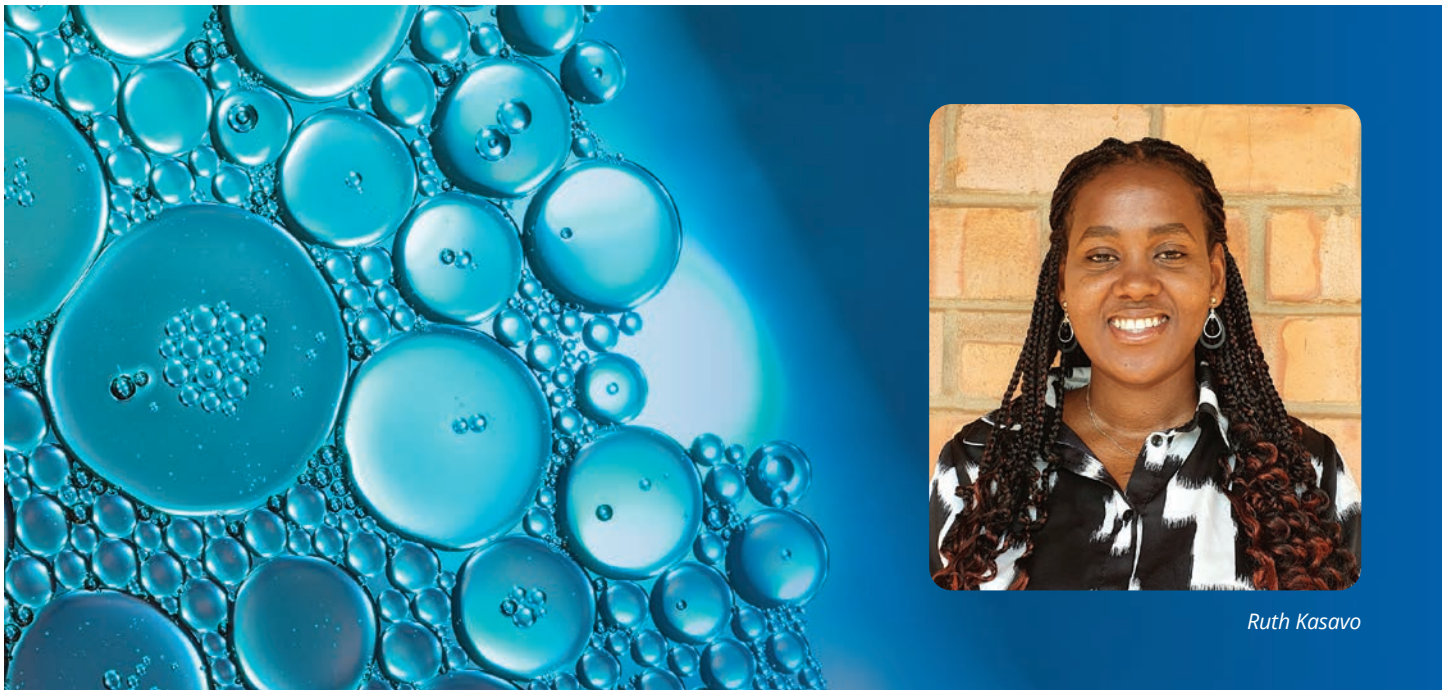
The Faculty for the Future fellowship is awarded to women from developing and emerging economies to pursue PhD or postdoctoral research in science, technology, engineering, and mathematics (STEM) fields at leading universities worldwide. The eligibility criteria include the candidate holding an excellent academic record, demonstrating leadership skills, being involved in community outreach activities, and having a track record in encouraging girls and women into STEM fields.

Kyomuhimbo describes receiving this fellowship as a great delight as it alleviated the financial burden on her education and allowed her to focus more on her studies. 'It also means my hard work has not gone unnoticed,' she explains. 'The fellowship comes with mentorship and networking opportunities through conferences and with other fellows, which are invaluable opportunities for collaboration and my career growth.'

Kyomuhimbo, who completed her undergraduate studies at the Makerere University in Uganda and her master's at the University of Nairobi in Kenya, chose to pursue her doctoral studies at the University of Pretoria because the Department of Chemical Engineering is ranked among the best in Africa, with notable researchers of profound expertise. 'They have well-equipped laboratories that provide a conducive research environment,' she concludes.

I AM EBIT: CHEMICAL ENGINEERING

Young chemical engineer strives to improve water quality in Africa



Ruth Kasavo

Ruth Kasavo, a PhD student in the Department of Chemical Engineering in the University of Pretoria (UP)'s Faculty of Engineering, Built Environment and Information Technology, has been awarded the Excellence in Africa (EXAF) 100 PhDs for Africa fellowship of the Federal Polytechnic of Lausanne (EPFL) in Switzerland for her doctoral research.

Her research project will entail examining magnetic nanoparticles and polymer nanocomposites for the removal of organic, heavy metals and pharmaceutical pollutants. According to Kasavo, her research has the objective of finding an industrial application.

Research with impact

She explains that the increasing presence of pollutants in the environment is a major global concern. 'Many researchers have found that adsorption using different materials, such as carbon nanotubes, graphene, metal oxides, and polymer composites, is effective in the removal of pollutants from water and wastewater,' she says. Therefore, she will investigate the viability of using magnetic nanoparticles and polymer nanocomposites in a continuous flow system to remove pollutants from wastewater.

'My study will focus on how this technology can be applied to industry,' Kasavo explains. 'A batch setup will optimise adsorption parameters such as solution pH, adsorbent loading, adsorption kinetics, and isotherms.' She describes how the optimised conditions will be used to explore the effectiveness of the composite to remove pollutants in a continuous system. 'The research approach will include a literature review, an experimental design, data collection, and data analysis. The research methods will include synthesis of the materials, characterisation, batch and continuous system experiments, and result analysis,' she explains.

International recognition

The EPFL's initiative is designed to fund science and engineering graduates who plan to complete their doctoral studies at an African higher education institution. The fellowship includes co-supervision by an academic employed by the awardee's home institution in Africa and an academic from the EPFL. Prof. Hendrik Brink, Kasavo's main supervisor in UP's Department of Chemical Engineering, is a specialist in environmental engineering, while Prof. Francesco Stellacci, her co-supervisor from the EPFL, is a specialist in nanomaterials. She will also have the opportunity to perform some of her research in Prof. Stellacci's laboratory in Lausanne.

Kasavo describes receiving the 100 PhDs for Africa fellowship as a tremendous honour that will greatly enhance her research career: 'This nomination provides me with invaluable opportunities for collaboration with leading experts, access to cutting-edge resources, and a platform to contribute to meaningful advancements in environmental remediation technologies. It validates the significance of my research and empowers me to drive impactful industrial applications that address critical pollution challenges in Africa and beyond.'

I AM EBIT: EDUCATION IN ACTION

Annual Robot Car Race Day

The annual Robot Race of the Faculty of Engineering, Built Environment and Information Technology (EBIT) was initiated by Prof Tania Hanekom in 2013 in an attempt to create an engaging, enjoyable practical project for the third-year Microcontrollers module as students were really struggling with the module.

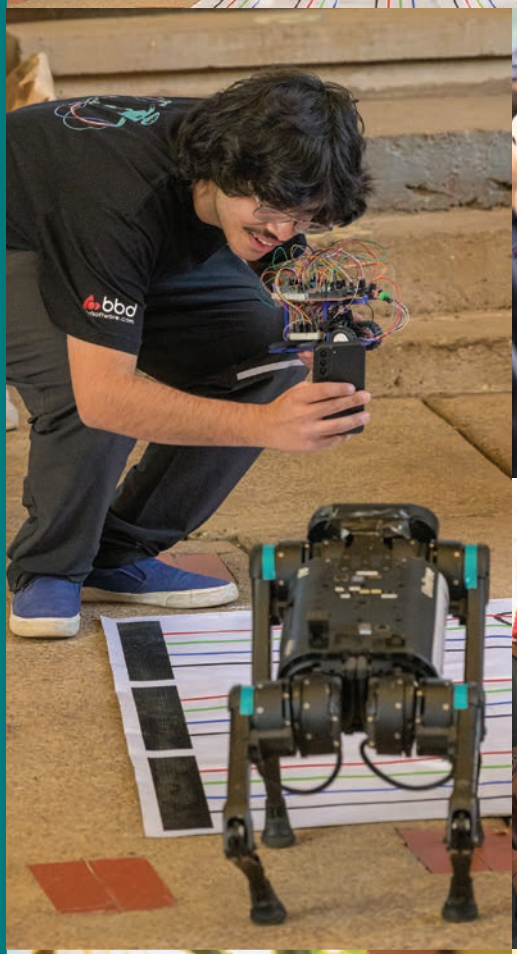
The intent was to generate excitement in the students about the learning material by creating a formal opportunity to play and explore. Inviting spectators to attend the Robot Race, which was initially no more than the final practical assessment in the Microcontrollers module, provided the opportunity for other students and members of the public to see what the students were doing in class.

Students had to work together in small groups to design and build a microcontroller-based autonomous robotic vehicle. The outcome of the project was for the autonomous vehicle to navigate a coloured line laid out to purposefully cross over other coloured lines and not veer off course, in the shortest time possible.

The project has been extended to other modules within the Department, enabling the horizontal and vertical integration of learning content in the respective programmes.

The Robot Race is also the inspiration behind a Robot School community engagement project, launched in 2021. This involves second-year and final-year students in the Department, who need to complete a period of work-integrated learning. The Robot School curriculum is targeted at Grade 8 to Grade 11 learners, and is presented free of charge between April and October each year.

LEARN MORE



SCHOOL FOR THE BUILT ENVIRONMENT

The School for the Built Environment offers the entire spectrum of programmes in this field, and prioritises close ties and alignment with the building industry. The School places a particular emphasis on the equitable and sustainable development of people.

The School offers professional degree programmes in architecture, quantity surveying, construction management, real estate and town and regional planning, and professional postgraduate programmes in landscape architecture and interior architecture. All these programmes are internationally recognised and accredited by their respective statutory councils, allowing students to register as members of their chosen professions. We also encourage our students to participate in community development and service during their studies, as well as after they graduate.

Our close relationships with industry and government expose students to regular engagements with practitioners and real-life projects; and ensure curricula that are relevant to current and future challenges. These relationships also open doors to exciting research opportunities at postgraduate levels in fields such as environment behaviour studies, climate change adaptation, urban resilience, urban citizenship, green building, regenerative design and development, heritage and cultural landscapes, safe and sustainable housing and urban spaces, strategic development planning, construction cost databases, escalation and indices, and contracts and property law.

MAKE AN IMPACT

EBIT focuses its research on impacting global challenges. As the only faculty at a South African higher education institution to house a unique combination of schools related to engineering, the built environment, information technology and technology management, EBIT is in the ideal position to pursue research that provides integrated solutions. The School for the Built Environment actively contributes to research in the following Sustainable Development Goals (SDGs) of the United Nations:

- **SDG 9:** Industry, Innovation and Infrastructure
- **SDG 11:** Sustainable Cities and Communities
- **SDG 12:** Responsible Consumption and Production
- **SDG 13:** Climate Action

SCHOOL FOR THE BUILT ENVIRONMENT

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DISCOVER THE CAREER BENEFITS OF A POSTGRADUATE QUALIFICATION:
FIND SPECIALISATIONS

SCHOOL FOR THE BUILT ENVIRONMENT

Department of Architecture

Bachelor of Science in Architecture

About the Department

The Department of Architecture presents an undergraduate programme in architecture that explores the design of meaningful environments across varying scales, from intimate interior spaces to more significant interventions in landscapes. Specialised programmes in architecture, interior architecture and landscape architecture are introduced at the postgraduate level.

Our vision is to provide a learning environment that fosters critical and independent thinking, encourages social-ecological accountability and inspires responsive and responsible problem-solving that contributes to the improvement of society and its environment. We engage with spatial design with academic rigour that is theoretically grounded and technologically informed, and our academic programmes are locally and internationally accredited.

What does the programme entail?

The curriculum for the Bachelor of Science in Architecture programme integrates knowledge from the humanities and the natural sciences to develop students' spatial design skills, and aims to instil a culture of lifelong learning in graduates.

Design and Applied Theory
Architecture students attain half of the credits for every year of study in the significant module of design, which is presented in tandem with architectural theory to equip students with a pertinent vocabulary and theoretical underpinning.

Design is a studio-based module in which projects over a range of scales and complexities are undertaken to encourage students to develop critical and independent design thinking, the ability to evaluate design within a social, cultural and ecological framework, and to explore imaginative and appropriate solutions.

In the studio, design discernment is fostered through ongoing discussion, peer learning, and formal and informal assessment. The Department promotes design that is responsive and evidence-based rather than stylistically or iconically driven, and students are encouraged to appreciate the universal (global), while engaging with the particular (local).

History of the Environment
History of the Environment prepares students to define their role in society and find meaning in history through the study of the self and the cultures of others. It investigates the context and meaning of cultural artefacts, including space and place, to relate form and order to the environmental, political and philosophical conditions that influenced their making. It culminates in a reading of southern Africa in the third year of study.

Earth Studies
Earth Studies introduce students to ecosystemic accountability and systems thinking to guide them towards designing for well-being in the built environment from social, cultural and environmental points of view. It includes ecological themes that extend to approaches that underpin and inform inclusive, ecological, passive and responsive design.

Students attend classes in the following subject streams:

Community and Practice
Students participate in collaborative community projects that are directed by our research and initiatives in urban citizenship, as well as the Faculty's community engagement module. In the third year of study, the focus turns to the management of a professional practice and the legal context of construction contract law.

Construction
The study of construction theory, materials and methods is presented as an extension of design to enable the designer to give tangible expression to built form and realisation of an architectural concept.

Design Communication
Design Communication offers students the opportunity to develop skills in harnessing especially the digital tools that are essential to designers in the twenty-first century. It deals with visual communication, digital visualisation and representation, and the management of document and building information.

Theory of Structures
Theory of Structures equips students with the theoretical knowledge and practical understanding required to analyse, plan and design critical structural components such as beams, columns and trusses from a structural engineering perspective, using timber, steel, concrete and other materials.

SCHOOL FOR THE BUILT ENVIRONMENT

Bachelor of Science in Architecture *(continued)*

Career opportunities

The Bachelor of Science in Architecture degree is accredited by the South African Council for the Architectural Professions and allows graduates to enter professional practice as technologists. To be able to register as a candidate architect, landscape architect or interior architect, they need to complete two additional professional postgraduate programmes. Note that the Department requires at least one year of work or travel before postgraduate studies are undertaken. Through a commitment to innovation and internationally recognised programmes, the Department maintains professional qualifications of a high standard. The graduates of the Department are highly regarded both locally and abroad, in academia as well as in practice.

Architects design spaces and buildings to satisfy our daily needs and improve the environment in which we live. They need abilities and skills that range from the practical to the artistic, and from the technical to the theoretical. As professionals, they conceptualise, design and document building projects and oversee quality control during construction. Architects are ethically and legally bound through institutes and a government-controlled council, which protects the interests of the public. Architects may manage their own practices or work for other − often multidisciplinary − firms, or can make contributions to the government sector and education.

The majority of our graduates work in professional practice, often in multidisciplinary firms. Still, there is a wide range of other possibilities that branch out from the spatial design disciplines: from furniture to urban design, ecological planning to entrepreneurship, as well as in research and advisory positions in the public and private sector.

Admission by selection

A limited number of students are admitted to the Department annually. Admission is determined by a four-part selection process explicitly developed to level the playing field between students coming from different educational and cultural backgrounds.

Please refer to www.up.ac/architecture for information on the selection requirements and process.

Important dates

Applications open on **1 April** and close on **30 June**.

Undergraduate	Minimum duration	Outcome (SACAP registration)
Bachelor of Science in Architecture	Three years (full-time, studio-based)	Candidate Architectural Technologist
At least one year of work or travel recommended before postgraduate studies are undertaken.		
Professional Postgraduate	**Minimum duration**	**Outcome**
Bachelor of Architecture Honours	One year (full-time, studio-based)	Candidate Senior Architectural Technologist
Bachelor of Landscape Architecture Honours	One year (full-time, studio-based)	Candidate Senior Landscape Architectural Technologist
Bachelor of Interior Architecture Honours	One year (full-time, studio-based)	Candidate Senior Interior Designer
Master of Architecture	One year (full-time, studio-based)	Candidate Architect
Master of Landscape Architecture	One year (full-time, studio-based)	Candidate Landscape Architect
Master of Interior Architecture	One year (full-time, studio-based)	Candidate Interior Architect

Minimum admission requirements

Programme	Minimum requirements for NSC/IEB for 2026			
	Achievement level			APS
SCHOOL FOR THE BUILT ENVIRONMENT	**English Home Language or English First Additional Language**	**Mathematics**	**Physical Sciences**	
Bachelor of Science in Architecture [3 years]	5	4	4	**30**

Will only be considered as first study choice. Selection programme: Selection includes an interview.

Contact information Dr Nico Botes (Coordinator: Undergraduate Programme in Architecture) | **Tel** +27 (0)12 420 4600 | **Email** arch@up.ac.za
Websites www.up.ac.za/architecture | www.up.ac.za/school-for-the-built-environment | www.up.ac.za/ebit-postgraduate
Academic enquiries: Prospective students | **Email** arch@up.ac.za | **Website** www.up.ac.za/architecture

SCHOOL FOR THE BUILT ENVIRONMENT

Department of Construction Economics

Bachelor of Science in Construction Management

What does the programme entail?

Construction management is the management of the physical construction process within the built environment and includes the coordination, administration and management of resources. The construction manager takes full responsibility in this process and can work either as a construction manager or a construction project manager.

What makes this programme unique?

The Bachelor of Science in Construction Management and Bachelor of Science Honours in Construction Management programmes are accredited nationally by the South African Council for the Project and Construction Management Professions (SACPCMP) and internationally by the Chartered Institute of Building (CIOB) and by the Royal Institute of Chartered Surveyors (RICS), both based in the UK with worldwide footprints. This international recognition makes our degree highly sought after. The CIOB has a worldwide footprint and provides our degrees in construction management with international recognition.

The Department also offers master's and doctoral degrees, which can be obtained by submitting a thesis and passing an oral examination.

Who are the ideal candidates?

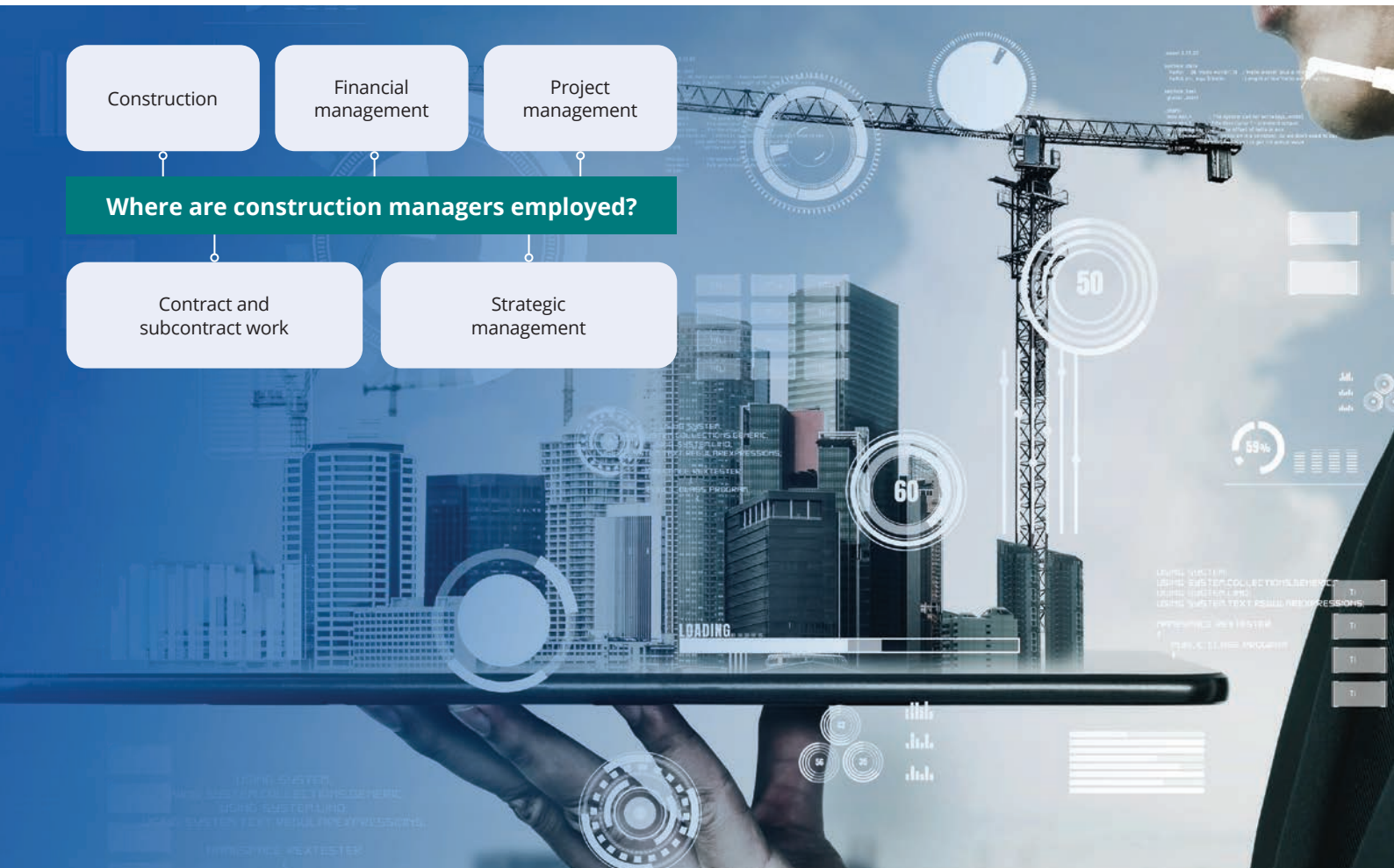
The ideal candidate should have the following skills:

- Communication
- Risk management
- Financial management
- Organisation
- Managerial skill

Career opportunities

Various job opportunities exist in the construction industry. On successful completion of the three-year programme, students can enter a career in construction management, or undertake subcontract and main contract work. On successful completion of the one-year honours degree, opportunities become far wider. The one-year honours degree focuses on further training in aspects such as financial, project and strategic management.

After registration with the South African Council for the Project and Construction Management Professions (SACPCMP), students will be able to become professional construction managers and construction project managers.



SCHOOL FOR THE BUILT ENVIRONMENT

Bachelor of Science in Construction Management *(continued)*

Duration of the programme

Bachelor of Science in Construction Management
The three-year programme will qualify Bachelor of Science in Construction Management graduates to support professionals in the construction industry with all types of construction work.

Bachelor of Science Honours in Construction Management
The one-year Bachelor of Science Honours in Construction Management programme qualifies graduates to start a professional construction management career or professional construction project management career in the construction and related industries. After submitting proof of prescribed professional practical experience and the successful completion of an assessment of professional competence, graduates may register with the South African Council for the Project and Construction Management Profession (SACPCMP).

The honours degree requires students to work part-time at construction companies or firms or other relevant establishments for a minimum of 240 hours to supplement their theoretical studies with hands-on practical experience. Students will be required to keep and submit a logbook on the prescribed template.

Minimum admission requirements

Programme	Minimum requirements for NSC/IEB for 2026			
	Achievement level			APS
SCHOOL FOR THE BUILT ENVIRONMENT	English Home Language or English First Additional Language	Mathematics	Physical Sciences or Accounting	
Bachelor of Science in Construction Management [3 years]	5	5	4	**30**

The suggested second-choice programme for Bachelor of Science in Construction Management is Bachelor of Science in Real Estate.

Contact information Mr Derick Booyens | **Tel** +27 (0)12 420 4433 | **Email** derick.booyens@up.ac.za
Websites www.up.ac.za/construction-economics | www.up.ac.za/school-for-the-built-environment | www.up.ac.za/ebit-postgraduate

SCHOOL FOR THE BUILT ENVIRONMENT

Department of Construction Economics

Bachelor of Science in Quantity Surveying

What does the programme entail?

Quantity surveyors are independent, professional consultants who are responsible for the financial management of construction projects. They provide specialised financial and contractual services, and advice to clients in the construction industry. They act in collaboration with, among others, architects, consulting engineers and building contractors to promote the interests of the client.

What will I do?

- Quantify construction drawings to prepare budgets and tender documents
- Protect the interests of the client and contractors
- Consult with developers, architects, engineers and building contractors

Who are the ideal candidates?

The ideal candidate should have:

- Strong numeracy skills
- Attention to detail
- Negotiation skills
- Organisational skills
- Discipline
- Interpersonal skills

What makes this programme unique?

The three-year Bachelor of Science in Quantity Surveying and Bachelor of Science Honours in Quantity Surveying programmes are accredited nationally by the South African Council for the Quantity Surveying Profession (SACQSP) and internationally by the Royal Institute of Chartered Surveyors (RICS).

The RICS has a worldwide footprint, which provides our degrees in quantity surveying with international recognition. The Department also offers master's and doctoral degrees, which can be obtained by submitting a thesis and passing an oral examination.

Career opportunities

Various job opportunities exist in the construction industry. The majority of quantity surveyors are employed in quantity surveying practices in the private sector. Quantity surveyors can also be employed as a contractor's QS with construction companies.

After registration with the South African Council for the Quantity Surveying Profession (SACQSP), quantity surveyors may become partners or directors in the firms where they are employed, or they could start their own practices.

SCHOOL FOR THE BUILT ENVIRONMENT

Bachelor of Science in Quantity Surveying *(continued)*

Duration of the programme

Bachelor of Science in Quantity Surveying
This three-year programme qualifies Bachelor of Science in Quantity Surveying graduates to support professional quantity surveyors with all types of construction work, particularly buildings and infrastructure.

Bachelor of Science Honours in Quantity Surveying
The one-year Bachelor of Science Honours in Quantity Surveying programme qualifies graduates to start a professional quantity surveying career in construction and related industries. After submitting proof of the prescribed professional practical experience and the successful completion of an assessment of professional competence, graduates may register with the South African Council for the Quantity Surveying Profession (SACQSP).

The honours degree requires students to work part-time at quantity surveying firms, or other relevant establishments for a minimum of 240 hours to supplement their theoretical studies with hands-on practical experience. Students will be expected to keep and submit a logbook on the prescribed template.

Minimum admission requirements

Programme	Minimum requirements for NSC/IEB for 2026			
	Achievement level			APS
SCHOOL FOR THE BUILT ENVIRONMENT	**English Home Language or English First Additional Language**	**Mathematics**	**Physical Sciences or Accounting**	
Bachelor of Science in Quantity Surveying [3 years]	5	5	4	**30**

The suggested second-choice programmes for Bachelor of Science in Quantity Surveying are Bachelor of Science in Construction Management and Bachelor of Science in Real Estate.

Contact information Dr Inge Pieterse (Programme Leader: Quantity Surveying) | **Tel** +27 (0)12 420 6534 | **Email** inge.pieterse@up.ac.za
Websites www.up.ac.za/construction-economics | www.up.ac.za/school-for-the-built-environment | www.up.ac.za/ebit-postgraduate

SCHOOL FOR THE BUILT ENVIRONMENT

Department of Construction Economics

Bachelor of Science in Real Estate

What does the programme entail?

The study of real estate (also known as the science of property) covers all aspects relating to land and buildings, including the development of land, the management of buildings (including shopping centres), the valuation of land and buildings and decision making regarding the financing of, and investment in land and buildings. Real estate/Property practitioners are professional people who work in all spheres of the property industry—also as professional property valuers.

What makes this programme unique?

The Bachelor of Science in Real Estate and Bachelor of Science Honours in Real Estate programmes are accredited nationally by The South African Council for the Property Valuers Profession (SACPVP) and internationally by the Royal Institute of Chartered Surveyors, apart from qualifying students to work in all spheres of the property industry, enabling them to become professional property valuers.

The Department also offers an Master of Science in Real Estate coursework degree, as well as master's and doctoral degrees, which can be obtained by submitting a thesis and passing an oral examination.

Internationally, the Master of Science in Real Estate coursework degree is accredited by the Royal Institute of Chartered Surveyors (RICS). The worldwide footprint of the RICS provides our real estate degrees with international recognition.

Who are the ideal candidates?

The ideal candidate should have:

- A keen interest in the greater built environment
- Strong project and management skills
- Strong creative and communication skills
- Strong entrepreneurial skills

Career opportunities

Real estate studies has developed into a specialised field requiring unique expertise in areas where the property sector represents a significant part of the South African economy. Real estate comprises between 40% and 50% of the world's total assets.

Apart from a future in areas such as property investment, property finance and facilities management, further studies to obtain an honours degree in real estate can lead to registration with the South African Council for the Property Valuers Profession (SACPVP) as a professional property valuer.

Career opportunities exist in the entire spectrum of the property sector, and individuals with a qualification in real estate can work as entrepreneurs in the private sector, or as employees in the private, government or semi-governmental sectors.

SCHOOL FOR THE BUILT ENVIRONMENT

Bachelor of Science in Real Estate *(continued)*

Duration of the programme

Bachelor of Science in Real Estate
This is a three-year programme that will qualify graduates to work in the various spheres of the property industry, including management, development and marketing.

Bachelor of Science Honours in Real Estate
One-year Bachelor of Science Honours in Real Estate programme qualifies graduates to start a professinoal career in the property industry. After submitting proof of having gained the prescribed professional practical experience, and the successful completion of a professional examination, graduates may register with the SACPVP.

The honours degree requires students to work part-time at approved property companies or related businesses for a minimum of 240 hours to supplement their theoretical studies with hands-on practical experience. They will be expected to keep and submit a logbook on the prescribed template.

Minimum admission requirements

Programme	Minimum requirements for NSC/IEB for 2026			
	Achievement level			APS
SCHOOL FOR THE BUILT ENVIRONMENT	English Home Language or English First Additional Language	Mathematics	Physical Sciences or Accounting	
Bachelor of Science in Real Estate [3 years]	5	5	4	**30**

The suggested second-choice programme for Bachelor of Science in Real Estate is Bachelor of Commerce specialising in Investment Management.

Contact information Dr Inge Pieterse (Programme Leader: Real Estate) | **Tel** +27 (0)12 420 6534 | **Email** inge.pieterse@up.ac.za
Websites www.up.ac.za/construction-economics | www.up.ac.za/school-for-the-built-environment | www.up.ac.za/ebit-postgraduate

SCHOOL FOR THE BUILT ENVIRONMENT

Department of Town and Regional Planning

Bachelor of Town and Regional Planning

What does the programme entail?

This programme prepares students for a profession in which they will promote and manage societal transformation and progressive change through the planning, design, implementation and management of interventions in the development and use of land.

These interventions, which range from site level to supranational level, are aimed at widening choice, promoting equity, ensuring sustainable human settlements and improving people's quality of life.

The guiding motive of the profession is the pursuit of innovative, inclusive, sustainable and affordable alternatives to existing settlement types. At the current juncture in South Africa's history, town and regional planning as a profession plays a crucial role in the correction of the many spatial and other imbalances in both urban and rural areas, as well as the improvement of inefficient, unjust and underperforming human settlements.

The challenge for planning is the fact that stakeholders, role players and participants have different interests and different expectations for the future, which are often contradictory and conflict ridden.

What makes this programme unique?

One of the characteristics of the Department is its desire to take on new challenges and develop innovative ways of contributing to the reconstruction and development of the country. We are actively immersed and involved in, and committed to inclusive and transformative community development in South Africa, mainly through research and contract work for a range of clients in all three spheres of government.

The professional four-year Bachelor of Town and Regional Planning qualification enables graduates to register as professional town and regional planners with the South African Council for Planners (SACPLAN), which is an official body established in terms of an act of Parliament. The degree is internationally recognised.

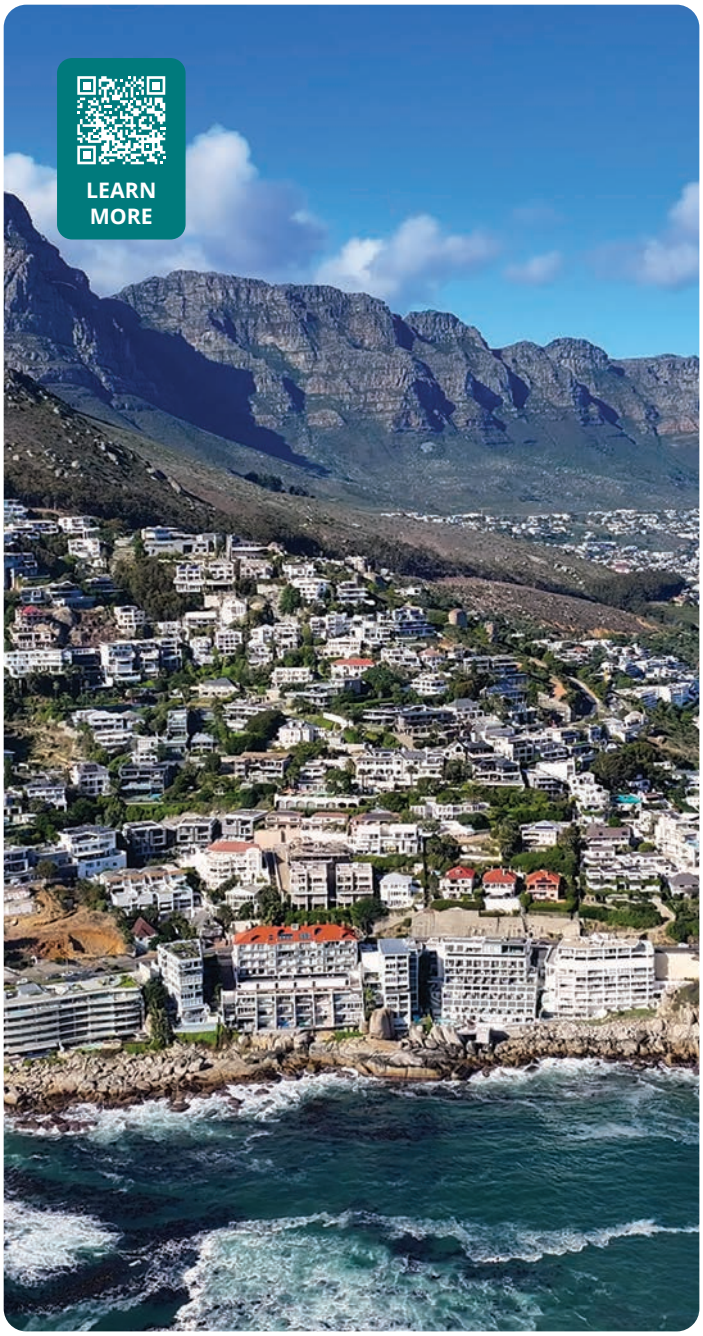
Who are the ideal candidates?

A professional approach that combines sensitivity, empathy and care, and strong analytical and strategic skills are required to manage the various political, social, environmental and economic issues at stake. The ideal town and regional planners are creative, can suggest innovative solutions to complex problems and, as mediators, can reconcile diverse points of view. They are strategic thinkers and good managers, and are passionate about working with people.

Given the enormous backlogs in the areas of housing and social services and the deep levels of poverty, marginalisation and despair in the country, planners also need a strongly developed sense of social and environmental justice. They should be committed to human and community development.

Career opportunities

While most town and regional planners are employed in the three spheres of government, or act as private consultants to the public and private sectors, they are also employed by research agencies such as the Council for Scientific and Industrial Research (CSIR) and the Human Sciences Research Council (HSRC), non-governmental and development organisations, community-based organisations, major financial institutions and property development groups.



SCHOOL FOR THE BUILT ENVIRONMENT

Bachelor of Town and Regional Planning *(continued)*

Structure of the programme

- The minimum period of study is four years' full-time study.
- Only a limited number of candidates can be accommodated and admission is subject to selection.

Practice and theory are integrated into the programme. Lectures, practical projects and studio work focus on stimulating critical thinking, engaging students in discussion and using practical problem-solving exercises by applying theory to real-world situations. Instruction is student centred and the progress of each student is carefully monitored.

The Town and Regional Planning programme equips planners with the knowledge and skills needed to present interventions to deal with many problems on properties and in settlements and regions by focusing on the following themes: planning theory and history; land-use management and land development; settlement planning and design; strategic and integrated development planning; urban and rural regeneration; public policy preparation and review; and planning methods and techniques.

Several modules in related fields are also prescribed to ensure that students acquire a multidisciplinary perspective and the knowledge base that is necessary to provide innovative, inclusive, affordable and appropriate solutions to complex urban and rural problems.

Minimum admission requirements

Programme	Minimum requirements for NSC/IEB for 2026			
	Achievement level			APS
SCHOOL FOR THE BUILT ENVIRONMENT	English Home Language or English First Additional Language	Mathematics	Physical Sciences	
Bachelor of Town and Regional Planning [4 years]	5	4	-	**27**

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.

Contact information Prof Karina Landman (Head of Department) | **Tel** +27 (0)12 420 6379 | **Email** karina.landman@up.ac.za
Websites www.up.ac.za/townplanning | www.up.ac.za/school-for-the-built-environment | www.up.ac.za/ebit-postgraduate

SCHOOL OF INFORMATION TECHNOLOGY

The School of Information Technology is a forerunner in the South African IT environment. With its unique combination of the fields of computer science, informatics and information science, students benefit from an integrated approach, supported by modern laboratories.

All the degree offerings in the School are highly sought after in the IT industry with a focus on industry-related trends. We also collaborate with industry and academic partners from the African continent and the rest of the world on a variety of research projects in exciting new technology fields.

The curricula conform to the highest international standards and provide breadth and depth in computing skills; equipping students with problem-solving abilities, and giving them a foundation for continued learning in an IT career. As a testimony to our commitment to top-quality education, the School of IT is a proud member of the iSchools Organization.
Learn more from **ischools.org**

MAKE AN IMPACT

EBIT focuses its research on impacting global challenges. As the only faculty at a South African higher education institution to house a unique combination of schools related to engineering, the built environment, information technology and technology management, EBIT is in the ideal position to pursue research that provides integrated solutions. The School of Information Technology actively contributes to research in the following Sustainable Development Goals (SDGs) of the United Nations:

- **SDG 4:** Quality Education
- **SDG 9:** Industry, Innovation and Infrastructure
- **SDG 17:** Partnerships for the Goals

SCHOOL OF INFORMATION TECHNOLOGY

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DISCOVER THE CAREER BENEFITS OF A POSTGRADUATE QUALIFICATION:
FIND SPECIALISATIONS

I AM EBIT

Women in STEM

Natalie Hanekom received the Vice-Chancellor and Principal's award for the best undergraduate student in the Faculty of Engineering, Built Environment and Information Technology for 2023. She also received the Medal of the Engineering Council of South Africa and the awards for the best final-year EPR400 Electronic Engineering student and the best final-year student for 2023. Well done, Natalie!

Research on signal processing improves auditory communication Natalie Hanekom, a master's degree student in the Faculty of Engineering, Built Environment and Information Technology, is not one to let being a woman stand in the way of achieving her dream. By utilising speech enhancement signal processing, she wants to improve people's quality of life by improving their auditory communication experiences. As the top student in the Department of Electrical, Electronic and Computer Engineering (EECE) in 2023, she has decided to continue her postgraduate studies in electronic engineering within the department's bioengineering group.

Her final-year project involved the development of an acoustic microphone array beamformer. This is a method of creating a virtual pattern in space that allows sounds from certain directions to be heard while 'muting' or 'turning down the volume' on sounds coming from other directions. This technique of spatial hearing enables microphone arrays to perform various tasks, including cancelling background noise, separating the speech of many people in a room, and localising and tracking people in a room.

Hanekom would like to use the knowledge gained from her final-year project in her master's study as speech enhancement signal processing is something that is applicable to everyone in modern society. Microphone array beamforming, for example, is used in most new phones, laptops, and home assistive devices, as well as in cochlear implants and hearing aids.

Her interest in signal processing was piqued by research conducted by her parents, who are both academics in the university's Department of EECE. Her dream of pursuing an academic career was prompted by the fact that she wants to be able to apply real knowledge that can help people in their daily lives. She loves academia, as it enables her to be on the cutting edge of the latest developments and the first to know about research being conducted to develop new technologies. She is, however, open to the option of entering industry in a research and development capacity, which her degree will enable her to do.

Hanekom chose the University of Pretoria for her undergraduate studies as she considered it to be one of the best universities in the world, and she has not regretted her decision. Despite choosing to study in the male-dominated discipline of engineering, she received nothing but encouragement throughout her academic journey. 'The university does not discriminate on the basis of gender, and we were treated equally in all respects,' she says.

She would recommend a career in science for female students, as they have an important role to play in society, and their contribution is no different from that made by their male counterparts.

READ MORE

SCHOOL OF INFORMATION TECHNOLOGY

Department of Computer Science

Bachelor of Science in Computer Science

What does the programme entail?

A Bachelor of Science in Computer Science degree from the University of Pretoria provides breadth and depth in computing skills. It equips students with problem-solving abilities and ensures that they have a solid foundation for continued learning and producing high-quality software in an IT career.

What makes this programme unique?

The curriculum conforms to the highest international standards and will give students a foundation in all the important areas of computer science. Students will study a wide variety of computer science modules that emphasise the most up-to-date ways of developing software for use in the IT industry.

Career opportunities

Graduates follow careers in programming, system analysis, system architecture, consulting, database administration and network analysis. They can also be employed as researchers.

Who are the ideal candidates?

Bachelor of Science in Computer Science is the ideal programme for students who are curious about how computers work, enjoy building things carefully and systematically, have logical minds, are good at step-by-step reasoning, enjoy designing things that others can use, can pay attention to detail, can recognise good style and are able to keep working at a task until they succeed.

The ideal candidate should have:
- Attention to detail
- The ability to work with others in a team
- Analytical skills
- Creativity
- A logical mind

LEARN MORE

Structure of the programme

The minimum time required for completing a Bachelor of Science in Computer Science degree is three years. This programme includes a significant number of mathematics and natural sciences modules to strengthen the kind of thinking needed for the development of software and the enhancement of problem-solving abilities. It also provides a basis for research in computer science, which often relies on a certain level of mathematical skill and maturity.

Minimum admission requirements

Programme	Minimum requirements for NSC/IEB for 2026		
	Achievement level		APS
SCHOOL OF INFORMATION TECHNOLOGY	English Home Language or English First Additional Language	Mathematics	
Bachelor of Science in Computer Science [3 years]	5	6	30

The suggested second-choice programmes for Bachelor of Science in Computer Science are Bachelor of Science in Information Technology in Information and Knowledge Systems and Bachelor of Commerce specialising in Information Systems.

Contact information Dr Linda Marshall (Programme Coordinator) | **Tel** +27 (0)12 420 2361 | **Email** compsci@up.ac.za
Websites www.cs.up.ac.za | www.up.ac.za/school-of-information-technology | www.up.ac.za/ebit-postgraduate

SCHOOL OF INFORMATION TECHNOLOGY

Department of Computer Science

Bachelor of Science in Information Technology in Information and Knowledge Systems

What does the programme entail?

Bachelor of Science in Information Technology in Information and Knowledge Systems is the ideal programme for students who are interested in computer science, and specifically in one of the following areas of specialisation:

- Data science
- Genetics
- Geographical information systems
- IT and enterprises
- Law
- Music
- Software development

The minimum period for the completion of the Bachelor of Science in Information Technology in Information and Knowledge Systems programme, which aims to prepare students for careers in the IT industry, is three years.

What makes this programme unique?

Computer science has a multidisciplinary application domain and the purpose of the programme is reflected in the composition of the curriculum, which combines computer science with other fields of study. The possibility of taking a second major other than computer science broadens the scope of the curriculum for students.

Who are the ideal candidates?

The ideal candidate should have:

- Attention to detail
- The ability to work with others in a team
- Analytical skills
- Creativity

Minimum admission requirements

Programme	Minimum requirements for NSC/IEB for 2026		
	Achievement level		APS
SCHOOL OF INFORMATION TECHNOLOGY	English Home Language or English First Additional Language	Mathematics	
Bachelor of Science in Information Technology in Information and Knowledge Systems [3 years]	4	6	**30**

The suggested second-choice programme for Bachelor of Science in Information Technology in Information and Knowledge Systems is Bachelor of Science in Computer Science.

Contact information Dr Linda Marshall (Programme Coordinator) | **Tel** +27 (0)12 420 2361 | **Email** compsci@up.ac.za
Websites www.cs.up.ac.za | www.up.ac.za/school-of-information-technology | www.up.ac.za/ebit-postgraduate

SCHOOL OF INFORMATION TECHNOLOGY

Department of Informatics

Bachelor of Information Technology in Information Systems

What does the programme entail?

Students who enrol for this programme study the application and use of computer and information systems in organisations. The use of information technology by organisations is growing exponentially and new, more complex and challenging applications are being explored and developed all the time.

Informatics specialists are trained to analyse business problems experienced by organisations and to improve the efficiency, effectiveness and control of business processes for commercial organisations, government, government departments, non-profit organisations or any other organisation where information is crucial. They therefore not only analyse the business needs, but also address them by designing and implementing information systems.

Nowadays the term information systems is used to refer to computer-based systems (including mobile applications) that store and manipulate data so that people can understand and interpret information and use it for decision-making.

What makes this programme unique?

What makes the Informatics degree at the University of Pretoria unique is the Capstone Project, which is a working software solution for a real-life client. Implementing this software solution exposes students to the industry's need for graduates with both soft skills and technical skills.

Who are the ideal candidates?

The ideal candidate should have:
- analytical skills;
- excellent research skills;
- problem-solving skills;
- communication skills; and
- the ability to work in a team.

Career opportunities

The work environment of the informatics specialist is particularly interesting and well-qualified informatics specialists can choose between many excellent job opportunities, for example:

- Business analyst
- System analyst
- Data scientist
- Knowledge manager
- Quality assurance tester
- User experience designer
- Project manager
- Developer (front end, back end or full stack)
- IT auditor
- IT entrepreneur
- IT tax specialist
- e-business consultant

Structure of the programme

The Bachelor of Information Technology in Information Systems programme takes a minimum of three years to complete.

Core modules
- Critical thinking and problem solving
- Programming
- Systems analysis and design
- Database design and development
- Team skills development

Elective modules are dependent on the chosen stream.

Where are informatics specialists employed?

Epi Use, Epi Use Labs, Investec, KPMG, BMW ZA Hub

Moyo, Intecon, Standard Bank, FNB, ABSA

Minimum admission requirements

Programme	Minimum requirements for NSC/IEB for 2026		
	Achievement level		APS
SCHOOL OF INFORMATION TECHNOLOGY	English Home Language or English First Additional Language	Mathematics	
Bachelor of Information Technology in Information Systems [3 years]	5	5	**30**

The suggested second-choice programme for Bachelor of Information Technology in Information Systems is Bachelor of Information Science.

Contact information Prof Marié Hattingh (Programme Coordinator) | **Tel** +27 (0)12 420 3798 | **Email** informatics@up.ac.za
Websites www.up.ac.za/informatics | www.up.ac.za/school-of-information-technology | www.up.ac.za/ebit-postgraduate

SCHOOL OF INFORMATION TECHNOLOGY

Department of Informatics

Bachelor of Commerce specialising in Information Systems

What does the programme entail?

The Bachelor of Commerce specialising in Information Systems entails the study of the application and use of computer and information systems in organisations. The superiority of students in this field lies in their broad background in the field of economic and management sciences, which implies familiarity with the world of business.

The use of information technology by organisations is growing exponentially, and new, more complex and challenging applications are being continuously explored and developed. In addition to the fact that their work environment is particularly interesting, many job opportunities are available to well-qualified informatics specialists.

Informatics specialists are trained to analyse the information needs of businesses, government departments, non-profit organisations or any other organisation where information is crucial. They not only analyse the needs but also address those needs by designing and implementing information systems. The term information systems is used nowadays to refer to computer-based systems (including mobile applications) that store and manipulate data so that people can understand, interpret information and use it for decision making.

The Bachelor of Commerce specialising in Information Systems degree offered by the University of Pretoria is the only degree in Africa that is internationally accredited by the Accreditation Board for Engineering and Technology (ABET) of the USA.

Career opportunities

Job opportunities for well-qualified informatics specialists can include:

- Data scientist
- IT auditor
- IT entrepreneur
- IT tax specialist
- e-business consultant
- Programmer
- Business analyst
- Project manager
- CIO
- CTO
- Knowledge manager

Minimum admission requirements

Programme	Minimum requirements for NSC/IEB for 2026		
	Achievement level		
SCHOOL OF INFORMATION TECHNOLOGY	English Home Language or English First Additional Language	Mathematics	APS
Bachelor of Commerce specialising in Information Systems [3 years]	5	5	**30**

This programme is administered by the Faculty of Economic and Management Sciences.

Contact information Dr Riana Steyn (Programme Coordinator) | **Tel** +27 (0)12 420 3798 | **Email** informatics@up.ac.za
Websites www.up.ac.za/informatics | www.up.ac.za/school-of-information-technology | www.up.ac.za/ebit-postgraduate

SCHOOL OF INFORMATION TECHNOLOGY

Department of Information Science

Bachelor of Information Science specialising in Multimedia*

What does the programme entail?

Modern information technology offers the possibility of information products being designed and created comprising various types of media over and above the traditional text medium. Information technology, therefore, results in the convergence of various previously separate traditional media. There is not a single discipline that handles the combination of information products.

The Multimedia qualification in the Department of Information Science addresses this shortcoming. Institutions in any economic sphere, including government, may profit from an interactive technology approach to information design, organisation and retrieval. Interactive technology documents include text, graphics, sound, video and animation. This qualification aims to enable students to understand the necessary concepts to build interactive technology products and maintain the products. This programme is, therefore, a combination of theory and practice. The explosion of the web and the exponential growth and power of information technology require the introduction of this degree following international trends.

Which companies employ our graduates?

Institutions in any economic sphere can profit from an interactive technology approach to information. For example, our graduates work at:

- RetroRabbit
- Gendac
- Epi Use Labs
- Derivco
- bizAR Reality
- 5DT

What makes this programme unique?

A student with this degree will work in a team of developers and designers and communicate easily with both groups. They will also have the skills to move between these two types of roles within a company.

They will also be able to further their understanding of design, animation, and game design and development and then work in those fields.

Who are the ideal candidates?

The ideal candidate should be:

- Passionate about computing and technological advancements
- Happy to spend many hours in front of a computer
- Interested in creating and maintaining websites (both front- and back-end)
- Interested in learning about animation, image, sound and video editing
- Interested in the intersection between technical aspects (programming) and design aspects (user experience, visual design)
- Interested in understanding how people interact with computing systems and how to design them based on this knowledge (user experience and interaction design)

** Possible name change to: Bachelor of Information Science specialising in Interactive Technology*

SCHOOL OF INFORMATION TECHNOLOGY

Bachelor of Information Science specialising in Multimedia* *(continued)*

Structure of the programme

Core modules
- Theory of information science
- Mark-up languages
- Interactive Technology theory and trends
- Interactive Technology authoring tools
- Human-computer interaction
- Programming and program design
- Computer science theory
- Visual design

Elective modules (3rd year computer science only)
- Software engineering
- Artificial intelligence
- Computer networks
- Programming languages
- Compiler construction
- Computer security
- Database systems
- Computer graphics

Minimum admission requirements

Programme	Minimum requirements for NSC/IEB for 2026		
	Achievement level		
SCHOOL OF INFORMATION TECHNOLOGY	English Home Language or English First Additional Language	Mathematics	APS
Bachelor of Information Science specialising in Multimedia* [3 years]	4	5	30

The suggested second-choice programmes for Bachelor of Information Science specialising in Multimedia** are Bachelor of Information Science, Bachelor of Information Science specialising in Publishing, Bachelor of Science in Information Technology in Information and Knowledge Systems and Bachelor of Commerce specialising in Information Systems.

Contact information Ms Annique Smith | **Email** annique.smith@up.ac.za
Websites www.up.ac.za/information-science > interactive technology | www.up.ac.za/school-of-information-technology
www.up.ac.za/ebit-postgraduate
** Possible name change to: Bachelor of Information Science specialising in Interactive Technology*

SCHOOL OF INFORMATION TECHNOLOGY

Department of Information Science

Bachelor of Information Science

What does the programme entail?

The high prevalence of information and technology in the modern world implies that graduates are needed with specific competencies and skills related to the interaction between humans and information technologies. This is especially relevant concerning the technologies associated with the Fourth Industrial Revolution (and any further similar innovations).

This programme focuses on the use of information technology and the processing of information products. It is designed to train students in the management, retrieval and organisation of information and teach them to package, distribute and add value to information.

Students will also have the opportunity to develop their knowledge and skills in managing information and knowledge, which are the most critical resources of enterprises—information and knowledge. This will include knowledge management, competitive intelligence and also digitisation and digital repositories.

Who are the ideal candidates?

The type of student for whom this qualification is ideal is interested in engaging with information and creating and sharing new knowledge across platforms, primarily digitally and in analogue formats. This qualification will enable graduates to discover, organise, manage and utilise information, practice knowledge management and competitive intelligence in an ethical manner. Graduates with skills in this field are highly sought after to help information-intensive industries to meet their visions and missions and become globally competitive.

Which companies employ our graduates?

Banks, telecommunication companies, consultancy agencies and information-intensive industries.

Minimum admission requirements

Programme	Minimum requirements for NSC/IEB for 2026		
	Achievement level		APS
SCHOOL OF INFORMATION TECHNOLOGY	English Home Language or English First Additional Language	Mathematics	
Bachelor of Information Science [3 years]	4	-	28

The suggested second-choice programmes for Bachelor of Information Science are Bachelor of Information Science specialising in Publishing, Bachelor of Commerce specialising in Information Systems and Bachelor of Arts.

Contact information Prof Marlene Holmner (Programme Coordinator) | **Tel** +27 (0)12 420 5215 | **Email** marlene.holmner@up.ac.za
Websites www.up.ac.za/school-of-information-technology | www.up.ac.za/ebit-postgraduate

SCHOOL OF INFORMATION TECHNOLOGY

Department of Information Science

Bachelor of Information Science specialising in Publishing

What does the programme entail?

The Bachelor of Information Science specialising in Publishing programme teaches publishing theory and skills by selecting and developing content based on the needs of the user and appropriately packaging this content through a process of adding value. Publishing can happen in both paper-based and electronic format and includes a range of products, such as books for the trade market and publications for educational, academic and corporate readers. Publishing processes are also used in the production of mass media products, such as newspapers and magazines.

This programme aims to:
- provide students with knowledge of the publishing process and role-players, as well as trends and initiatives in the local and international publishing industry;
- provide students with relevant and current skills, including editing, design and production;
- enable students to work with a variety of information formats, from print to digital; and
- make students aware of the social, ethical and legal responsibilities involved in the publishing process.

What makes this programme unique?

This programme is unique in South Africa and offers students access to the full publishing value chain. It is benchmarked against international programmes and students can continue with their studies in other countries.

Who are the ideal candidates?

The ideal candidate should have:
- excellent language and communication skills, both written and verbal;
- project management and the ability to work towards goals and deadlines;
- computer skills and an aptitude for learning new skills;
- critical reading and reasoning; and
- good business sense.

Career opportunities

Graduates can work in a wide variety of publishing, communication and media functions. Various career opportunities are available in the publishing industry, book retail and corporate communications. Content production for media houses, magazines and other content creators is also possible.

Some career opportunities include the following:
- Editorial functions
- Layout, design and typesetting
- Digital production
- Copyright permissions and negotiations
- Marketing and promotion
- Self-publishing and consultancy

LEARN MORE

Which companies employ our graduates?

Our graduates can be found at all the major local publishers (Pan Macmillan, Jonathan Ball, NB, Oxford University Press, Van Schaik, Springer Nature and and Juta), as well as at companies as diverse as legal firms, medical aid schemes and car manufacturers. Some are also entrepreneurs and start new businesses, for example BK Publishing and Blackbird Books.

Minimum admission requirements

Programmes	Minimum requirements for NSC/IEB for 2026		
	Achievement level		APS
SCHOOL OF INFORMATION TECHNOLOGY	English Home Language or English First Additional Language	Mathematics	
Bachelor of Information Science specialising in Publishing [3 years]	5	-	28

The suggested second-choice programmes for Bachelor of Information Science specialising in Publishing are Bachelor of Information Science, Bachelor of Arts specialising in Languages and Bachelor of Arts.

Contact information Prof Beth le Roux (Programme Coordinator) | **Tel** +27 (0)12 420 2426 | **Email** beth.leroux@up.ac.za
Websites www.up.ac.za/information-science | www.up.ac.za/school-of-information-technology | www.up.ac.za/ebit-postgraduate

FLAGSHIP RESEARCH PROJECTS

Engineering 4.0 positions the University of Pretoria (UP) as a centre of excellence for smart transportation

The state-of-the-art Engineering 4.0 complex, completed in 2020, houses several laboratories and research and training facilities, including a concrete laboratory, a timber laboratory, and a training laboratory. It is also the site of SANRAL's National Roads Materials Reference Laboratory, where the independent reference testing of materials for the road construction industry takes place, as well as an accelerated pavement testing track that can be monitored to study data related to traffic, pavement design, and road construction. This will support cost-effective and innovative pavement engineering for Africa's infrastructural development. Through this initiative, the Faculty is well on its way to earning a reputation as the country's leading expert in smart transportation.

Through its focus on the development of an integrated transportation system, Engineering 4.0's research concentrates on the reduction of energy consumption levels in transportation, maximising productivity in industry and creating a better quality of life for the country's citizens. With the introduction of artificial intelligence, robotics, and Big Data, the Department of Civil Engineering is making use of a smart alternative transportation platform in the form of a four-legged terrestrial robot. This research platform serves as a vehicle to access infrastructure for data collection across various disciplines.

READ MORE

Immersive learning

The Faculty has embraced immersive technology as an innovative teaching approach that provides students with realistic and engaging virtual learning experiences. Through virtual reality tools, it is possible to take the classroom to a remote and unsafe environment, such as an underground mine, and students can even potentially be taught to operate equipment in the virtual space before they are exposed to the actual machinery in the laboratory. This not only reduces the chance of accidents but also increases accessibility.

The Department of Mining Engineering is a trailblazer in this initiative, having established a virtual reality training centre in 2015. The Department of Information Science also plays a key role in this project with its Immersive Technology Laboratory. Here, students and staff can explore the latest immersive technology tools, including virtual reality (VR) and augmented reality (AR) tools, to gain confidence in using this technology.

READ MORE

FLAGSHIP RESEARCH PROJECTS

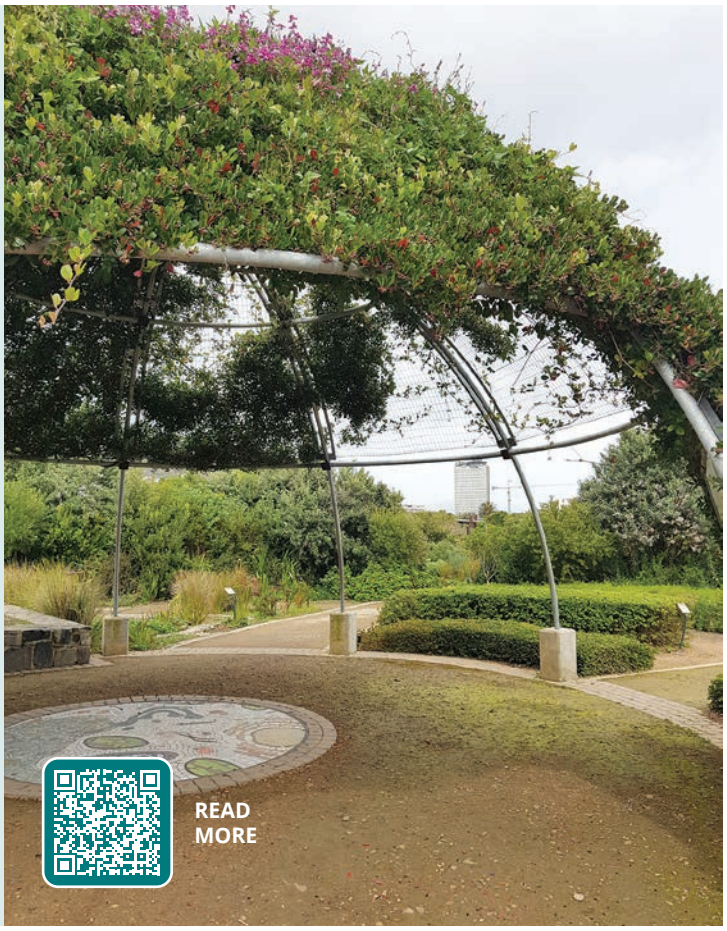
Built environment research contributes to urban upliftment

Postgraduate students in the School for the Built Environment have been making a difference in the informal settlements of Tshwane since 2016.

The research activities of the Department of Architecture's Unit for Urban Citizenship focus on addressing the needs of the residents of Plastic View and Melusi. This includes creating a sustainable built environment and providing basic services and infrastructure.

The unit strives to develop the scholarship of civil engagement and participatory development within the context of a complex emergent African urbanism. It simultaneously strives to embed a culture of responsible and collaborative urban citizenship in both its graduates and the communities within which it works. It offers a platform for vertical integration between study years to incorporate a socially responsive teaching and learning philosophy into the programmes of the Department of Architecture.

It also establishes an interdisciplinary network of collaboration that can achieve the horizontal integration of its objectives with specific stakeholders through inter-faculty engagement. By facilitating collaboration with its internal and external stakeholders, the department's teaching and research can be aligned to improve impact. In the process, the role of a university, as an anchor institution and social actor, is embedded in the community.

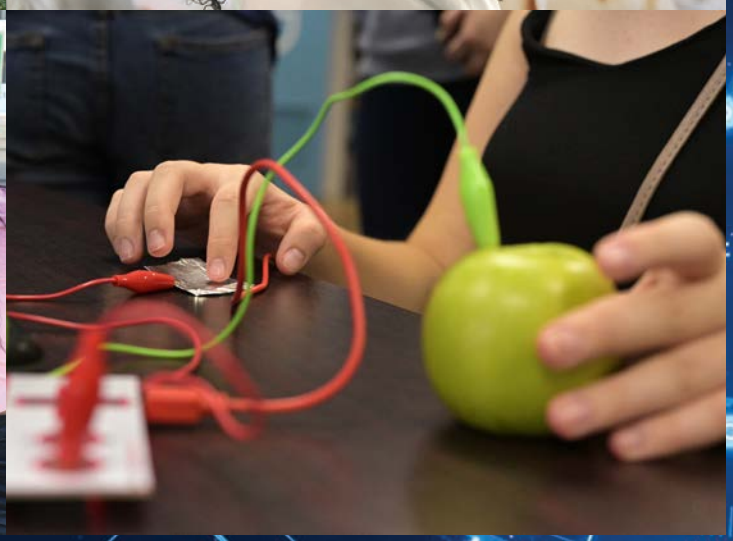


Teamwork across disciplines enhances sustainability

The global construction industry significantly contributes to the emission of greenhouse gases and the depletion of resources. This is aggravated by the waste that is generated in the construction and demolition of buildings. Adopting a circular value chain for building materials presents a wonderful opportunity to reduce embodied carbon, the dependency on raw materials, and wasteful practices. This entails reusing, refurbishing, and recycling existing materials and products for as long as possible. Since so much building waste ends up in the country's landfill sites, this has both a financial and an environmental impact. Members of the departments of Architecture and Civil Engineering therefore pursued an innovative approach in which they adopted a circular value chain for building materials.

This approach aimed to improve value chains in construction through transdisciplinary education by establishing how building materials originating from the demolition of structures can be reused in the construction of new buildings. The result was a transdisciplinary training model that employed computer models with building information data. Its success depended on collaboration and teamwork between members of the individual disciplines. It achieved international recognition for its impact, scalability, and sustainability when it received the Quanser Global Sustainability Award for 2023. It was the only shortlisted project from Africa.

2026



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Faculty of Engineering, Built Environment and Information Technology

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

University of Pretoria
Private Bag X20, Hatfield, 0028, South Africa
Tel +27 (0)12 420 3111
www.up.ac.za

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