UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Engineering, Built Environment and Information Technology

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

Bachelor of Engineering in Industrial Engineering

Make today matter

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?

LEARN ABOUT OUR FINAL-YEAR PROJECTS

LEARN ABOUT OUR VACATION WORK

Where are computer engineers employed?

- Mining sector
- Agriculture sector
- Banking sector
- Finance sector
- Service sector
- Manufacturing
- Government
- Food and beverage industry
- Pharmaceutical industry
- Communication industry
- Electricity supply services
- Information technology
- Logistics companies
- Consulting firms

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(continued)

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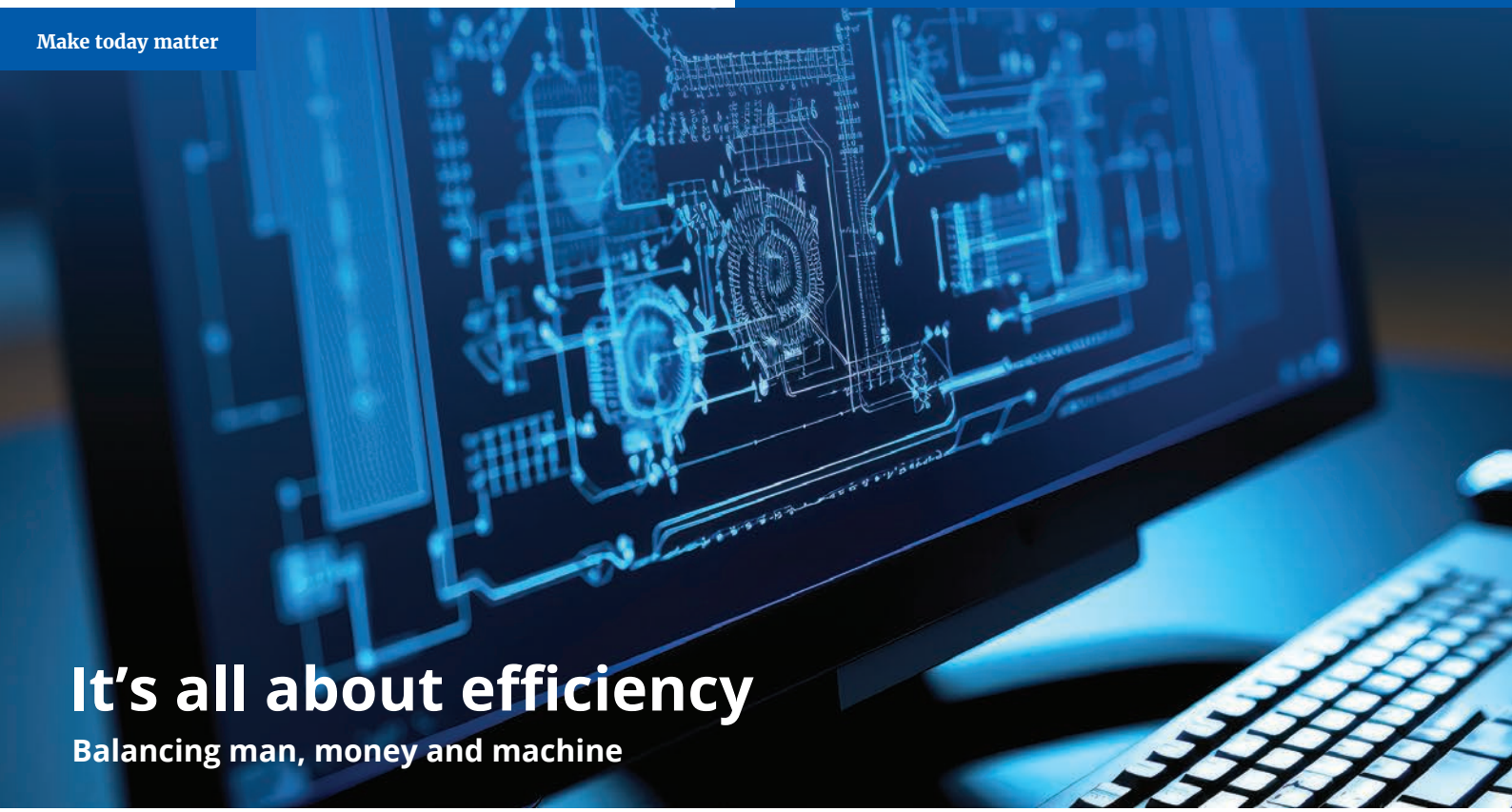

It's all about efficiency

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

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

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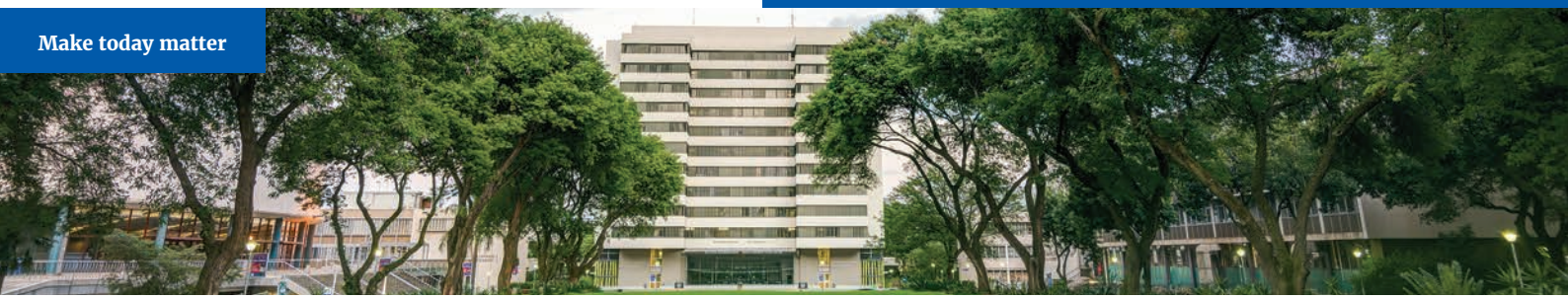

Refer to the International undergraduate prospectus at www.up.ac.za/programmes > Undergraduate > Admission Information or click here for more information.

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

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

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

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

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