



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 Mechanical Engineering



Make today matter



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



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.



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.



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(continued)



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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.



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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



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



Make today matter

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									
	Compulsory subjects	GCSE #		HIGCSE NSSC HL	AS Level	A Level	IB		KOMBI ABITUR	KCSE
		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.			GCE CIE NSSC AS	GCE CIE CGCE UACE WAEC ZGCE	IB SL	IB HL		
		CIE	UK							
IGCSE LGCSE BGCSE EGCSE O Level NSSC OL CGCE UCE NECO WAEC WASSCE ZGCE		England Wales Northern Ireland Pearson Edexcel GCSE								
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	4 4 3	3 3 3	C C D	E E E	4 4 2	3 3 2	60-69% 60-69% 50-59%	B B C+
Bachelor of Science in Real Estate		D	3	3	D	E	2	2	50-59%	C+
Bachelor of Science in Quantity Surveying		D	3	3	D	E	2	2	50-59%	C+
Bachelor of Engineering in Industrial Engineering	English Mathematics Physics Chemistry	C B B B B B B B B	4 5 5 5 5 5 5 5 5	3 2 2 2 2 2 2 2 2	C B B B B B B B B	E D D D D D D D D	4 5 5 5 5 5 5 5 5	3 4 4 4 4 4 4 4 4	60-69% 70-79% 70-79% 70-79% 70-79% 70-79% 70-79% 70-79% 70-79%	B B+ B+ B+ B+ 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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		CIE	UK							
IGCSE LGCSE BGCSE EGCSE O Level NSSC OL CGCE UCE NECO WAEC WASSCE ZGCE		England Wales Northern Ireland Pearson Edexcel GCSE								
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. <i>Previously called ENGAGE</i>	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

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

