



IIE Bachelor of Engineering in Mechanical Engineering

Faculty of Science & Technology

School of Engineering, Science & Health

4 Years Full-Time Degree | NQF Level 8

480 Credits | SAQA ID: 101732 | BEME0801

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Qualification description

The shortage of skilled Engineers has a widespread effect on South Africa and the African continent at large, affecting the country's functioning in the globalised business environment and economy. Upon graduating with this Degree, your skills will be in high demand, making you sought after by potential employers.

Unlike traditional engineering programmes, The IIE Bachelor of Engineering programme will expose you to the role of engineering in the real world as early as the first year of the programme. This programme ensures that you are equipped with first-hand experience of the value that engineering adds to improving the quality of lives in communities

This programme is available in two streams; namely the four- year mainstream programme and the five-year extended programme. The purpose of the extended programme is to offer students the opportunity to complete the first two years of the mainstream programme over a period of three years.



The credit allocation for the first two years of the programme will therefore be spread over three years and allow the student to make a smooth transition into tertiary education. This professional Degree is endorsed by The Engineering Council of South Africa (ECSA).

Who is this qualification aimed at?

The IIE Bachelor of Mechanical Engineering is for problem-solvers, innovators, and hands-on thinkers who want to design, build, and maintain the machines and systems that drive modern industry.

From mining and manufacturing to energy, transport, and high-tech innovation, you'll gain the skills to shape solutions, optimise processes, and lead projects across diverse industries.

CONTACT FULL-TIME

Admission Requirements

Minimum Admission Requirements		English	Math/HG	Physical Science	Notes
	NSC: Bachelor's Degree pass with	50%	70%	60%	Alternate Admission: Should the English requirement not be met at NSC Grade 12, entrance may be granted if the English requirement is met based on the final Grade 11 mark.
	NC(V): Bachelor's Degree pass with	50%	70%	60%	
	SC: Endorsement with	50%	70%	60%	
	SC(a): Bachelors pass with	50%	70%	60%	
	International	A USAf Exemption Certificate is required, with at least 70% or equivalent in Mathematics (A/AS-level only), 50% or equivalent in English (A/AS- or O-level), and either Physical Science or both Physics and Chemistry with a minimum of 60% at A/AS-level or 80% at O-level or equivalent.			
	A cognate Higher Certificate or cognate 240 credit Diploma OR an Advanced Certificate OR 360 credit Diploma OR Degree may satisfy the minimum admission requirements to degree studies.				

Scan the QR Code to learn more about Alternate Admission requirements for:
 RPL | Mature Age Exemptions | USAf International Students | One module outstanding from a Higher Certificate



Curriculum Structure

Year 1							
Semester 1				Semester 2			
Code	Module Name	NQF	Credits	Code	Module Name	NQF	Credits
BCPH5111	Basic Concepts in Physics	5	12	ADMC5112*	Advanced Mathematical Concepts	5	12
BMC05111	Basic Mathematical Concepts	5	12	BEOP5112*	Basics of Electrical and Optical Physics	5	12
COEM5111	Chemistry of Engineering Materials	5	12	CREN5112*	Chemical Reactions in Engineering	5	12
EDGR5111	Engineering Design Graphics	5	16	MEIF5112*	Mechanics: The Interaction of Forces	5	12
BACA5111	Basic Accounting and Analysis	5	12	FNAC5112*	Financial Accounting	5	12
INCT5111	Innovation & Creative Thinking	5	8	MACP5112*	Multidisciplinary Applied Community Projects	5	16
IPRE5111	Introduction to Programming for Engineers	5	8				
Year 2							
Semester 3				Semester 4			
Code	Module Name	NQF	Credits	Code	Module Name	NQF	Credits
ICAL6211*	Differential and Integral Calculus	6	12	SPPD6212*	Sociological Perspectives of Development	6	12
ICSI6211*	Introduction to Computer Simulations	6	8	TPOF6212*	Thermodynamic Properties of Fluids	6	8
EEFU6211*	Electrical Engineering Fundamentals	6	16	DIEL6212*	Digital Electronics	6	8

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Please note, details are correct at the time of publication.

Year 2							
Semester 3				Semester 4			
Code	Module Name	NQF	Credits	Code	Module Name	NQF	Credits
BAEL6211*	Basic Analogue Electronics	6	12	EDMS6212*	Economic Decision Making for Sustainability	6	12
FPMD6211*	Fundamental Principles in Machine Dynamics	6	12	SMLC6212*	Strength of Materials under Simple Loading Conditions	6	12
ELTH6211*	Electromagnetic Theory	6	8	MFFS6212*	Mechanics of Fluid Flow Systems	6	8
FMEN6211*	Financial Management for Engineers	6	12	ADIC6212*	Advanced Differential and Integral Calculus	6	12
Year 3							
Semester 5				Semester 6			
Code	Module Name	NQF	Credits	Code	Module Name	NQF	Credits
NUME7311*	Numerical Methods	7	12	STAM7312*	Statistical Methods	7	8
MSAP7311*	Material Science and Properties	7	12	MTEC7312*	Manufacturing Techniques	7	12
AMFF7311*	Advanced Mechanics of Fluid Flow Systems	7	12	MDES7312*	Machine Dynamics for Engineering Systems	7	12
SMCL7311*	Strength of Materials under Complex Loading Conditions	7	12	TMIA7312*	Thermal Machinery for Industrial Application	7	12
BCSD7311*	Basic Concepts in Structural and Machine Design	7	12	ACMS7312*	Advanced Concepts of Machine Systems Design	7	12
MEDP7311*	Mechanical Design Project	7	8	MEMI7312*	Mechanical Measurement and Instrumentation	7	8
SDHI7311*	Software Design and Hardware Interfacing	7	8	CODE7312*	Communication for Development	7	12
Year 4							
Semester 7				Semester 8			
Code	Module Name	NQF	Credits	Code	Module Name	NQF	Credits
DBEF8411	Dynamic Behaviour of Fluids	8	12	DEPM8412	Design Project for Mechanical Engineering	8	36
PGRE8411	Power Generation and Renewable Energy	8	16	REPM8412	Research Project for Mechanical Engineering	8	36
ENEN8411	Entrepreneurship for Engineering	8	12	EGAM8412	Engineering Graduate Attribute Competence (Mechanical)	8	0
PRMB8411	Project Management	8	8				

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Year 4				
Semester 7				Semester 8
Code	Module Name	NQF	Credits	
Electives: choose 3 modules to the total of 24 credits				
CSAU8411	Control Systems & Automation (Elective)	8	12	
MRMA8411	Maintenance and Reliability Management (Elective)	8	8	
POSY8411	Power Systems (Elective)	8	12	
MEVA8411	Mechanical Vibrations Analysis (Elective)	8	8	
MHTR8411	Mass and Heat Transfer (Elective)	8	8	
RACO8411	Refrigeration and Air Conditioning (Elective)	8	8	

*There are prerequisites for this programme that must be met in order to progress through the qualification.

Further Study Pathways

Currently there are no postgraduate study opportunities in Mechanical Engineering at Emeris. However, graduates from this programme will be able to pursue postgraduate studies at other South African and international universities that offer postgraduate programmes, subject to meeting the admission requirements.

Career Opportunities

A Mechanical Engineering Degree equips graduates with the skills and knowledge to excel in a diverse range of career paths across industries.

Opportunities include roles such as:

- Maintenance Engineer (managing and maintaining machinery in manufacturing, mining, and industrial plants to enhance and sustain operations)
- Design Engineer (developing prototypes using advanced engineering tools and software for a variety of industries)
- Process/Production Engineer (optimising manufacturing or processing operations to balance cost and quality)
- Quality Control/Testing Engineer (performing tests, analyses, and documentation to ensure compliance and quality standards)
- Field Service Engineer (installing and maintaining industrial equipment on-site)
- Project Engineer (overseeing engineering projects, coordinating design, budget, and deliverables)
- R&D Engineer (conducting experiments and creating prototypes for innovative client solutions)

Timetables

This qualification is aimed at students who wish to complete full-time face-to-face studies for the duration of their qualification. This means that students are expected to be available Mon-Fri 8:00 - 17:00 throughout the day for class in the academic year depending on how the timetable is structured.

Students must also note that timetables remain subject to change throughout the academic year.

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Graduation and Completion Requirements for This Qualification

In order to be awarded this qualification, you must have achieved a minimum final year mark of fifty percent (50%) for all 50/51 (depending on elective module credits) modules in the curriculum.

As a contact student, this qualification is structured to be completed over 4 years. The maximum time for completing a qualification full-time is double the minimum time associated with the qualification.

Apply Online

After your application is submitted, we will review your documentation and provide an outcome regarding your chosen study.



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