



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): HC pass with | 50% | 70% | 60% | |
| | International | USAf exemption certificate with 70% or equivalent for Maths and 50% or equivalent for English AND 60% or equivalent for Physical Science or both Physics and Chemistry. | | | |
| | 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 |

4 Years Full-Time Degree | NQF Level 8 | 480 Credits | SAQA ID: 101732 | BEME0801

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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 | | | | |

4 Years Full-Time Degree | NQF Level 8 | 480 Credits | SAQA ID: 101732 | BEME0801

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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.

4 Years Full-Time Degree | NQF Level 8 | 480 Credits | SAQA ID: 101732 | BEME0801

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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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4 Years Full-Time Degree | NQF Level 8 | 480 Credits | SAQA ID: 101732 | BEME0801

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