Emeris

IIE Bachelor of Engineering in Electrical and Electronic Engineering

Faculty of Science & Technology
School of Engineering, Science & Health

5 Years Full-Time Degree | NQF Level 8
480 Credits | SAQA ID: 101433 | BEEE0801

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Qualification description

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

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?

This qualification is aimed at individuals who are passionate about problem-solving, innovation, and applying engineering principles to address real-world challenges. It is ideal for school leavers and aspiring Engineers who want a career that combines technical expertise with practical, community-focused impact.

The programme is suited to those seeking to enter a high-demand field with opportunities across industries such as energy, manufacturing, telecommunications, and infrastructure development. Students who value early, hands-on industry exposure and the chance to contribute to improving quality of life in communities will find this programme particularly rewarding.

CONTACT FULL-TIME

Admission Requirements

Minimum Admission Requirements		English	Mathematics	Physical Science	Notes
	NSC: Bachelor's Degree pass with	50%	60%	50%	**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%	60%	50%	
	SC: Endorsement with	50%	60%	50%	
	SC(a): HC pass with	50%	60%	50%	
	International	USAf Exemption Certificate with 60% or equivalent for Maths AND 50% or equivalent for English AND 50% or equivalent is also required for either 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
BMCO5111	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
Year 2							
Semester 3				Semester 4			
Code	**Module Name**	**NQF**	**Credits**	**Code**	**Module Name**	**NQF**	**Credits**
IPRE5111	Introduction to Programming for Engineers	5	8	ADIC6212*	Advanced Differential and Integral Calculus	6	12
INCT5111	Innovation & Creative Thinking	5	8	SMLC6212*	Strength of Materials under Simple Loading Conditions	6	12
BACA5111	Basic Accounting and Analysis	5	12	FNAC5112*	Financial Accounting	5	12
EEFU6211*	Electrical Engineering Fundamentals	6	16	MACP5112*	Multidisciplinary Applied Community Projects	5	16
ICAL6211*	Differential and Integral Calculus	6	12				

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Year 3							
Semester 5				Semester 6			
Code	Module Name	NQF	Credits	Code	Module Name	NQF	Credits
ICSI6211*	Introduction to Computer Simulations	6	8	MFFS6212*	Mechanics of Fluid Flow Systems	6	8
BAEL6211*	Basic Analogue Electronics	6	12	DIEL6212*	Digital Electronics	6	8
FMEN6211*	Financial Management for Engineers	6	12	TPOF6212*	Thermodynamic Properties of Fluids	6	8
FPMD6211*	Fundamental Principles in Machine Dynamics	6	12	SPPD6212*	Sociological Perspectives of Development	6	12
ELTH6211*	Electromagnetic Theory	6	8	EDMS6212*	Economic Decision Making for Sustainability	6	12
Year 4							
Semester 7				Semester 8			
Code	Module Name	NQF	Credits	Code	Module Name	NQF	Credits
AANE7311*	Advanced Analogue Electronics	7	12	EMBS7312*	Embedded Systems	7	12
DISY7311*	Digital Systems	7	8	DESP7312*	Design Project	7	12
INME7311*	Instrumentation and Measurement	7	12	CODE7312*	Communication for Development	7	12
NUME7311*	Numerical Methods	7	12	POEL7312*	Power Electronics	7	8
POWS7311*	Power Systems	7	12	SIPR7312*	Signal Processing	7	12
SDHI7311*	Software Design and Hardware Interfacing	7	8	STAM7312*	Statistical Methods	7	8
SISY7311*	Signals & Systems	7	12	TELS7312*	Telecommunication Systems	7	12
Year 5							
Semester 9				Semester 10			
Code	Module Name	NQF	Credits	Code	Module Name	NQF	Credits
CSAU8411*	Control Systems & Automation	8	12	DEPE8412*	Design Project for Electrical & Electronic Engineering	8	36
PGRE8411*	Power Generation and Renewable	8	16	REPE8412*	Research Project for Electrical & Electronic Engineering	8	36
ENEN8411*	Entrepreneurship for Engineering	8	12	EGAE8412 *	Engineering Graduate Attribute Competence (Electrical and Electronic)	8	0
PRMB8411*	Project Management	8	8				
Electives: choose 3 modules to the total of 24 credits							
ADSY84111*	Advanced Power Systems (Elective)	8	8				
ELMA8411*	Electrical Machines (Elective)	8	8				
HVEN8411*	High Voltage Engineering (Elective)	8	8				
IMGP8411*	Image Processing (Elective)	8	8				
DACM8411*	Data Communications (Elective)	8	8				
CONE8411*	Computer Networks (Elective)	8	8				

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

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Further Study Pathways

Currently there are no postgraduate study opportunities in Electrical and Electronic 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

This Degree will open the door to a wide range of rewarding career opportunities; it is an ideal foundation for a diverse and impactful professional journey in the Electrical and Electronic Engineering field.

Graduates can pursue roles such as:

- Electrical Maintenance Engineer (managing and maintaining electrical systems in production plants and mining)
- Electronics Design Engineer (designing PCB circuitry and embedded systems)
- Power Systems Engineer (developing and maintaining power generation and distribution networks)
- Control Systems Engineer (designing and implementing industrial automation systems)
- Quality Control / Testing Engineer (conducting tests, analyses, and compliance checks)
- Field Service Engineer (installing, maintaining, and verifying electrical systems on-site)
- Project Engineer (overseeing design, budgets, and project deliverables)
- R&D Engineer (developing innovative sensor and interfacing systems)

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.

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 51 modules in the curriculum.

As a contact student, this qualification is structured to be completed over 5 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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Please note, details are correct at the time of publication.

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