Bachelor of Engineering in Electrical Engineering

Programme details:
The programme consists of core (required) and elective modules as indicated below. Some modules may have pre-requisites (i.e., may require students to pass another module or set of modules first). Some modules may be co-requisite (such modules are required to be taken together). The number at the end of the module in parenthesis indicates the credit load of the module. 1 credit is equal to 10 hours of learning (guided, in-class and independent combined); therefore a 10-credit module requires an average of 100 hours of learning from the student.

Fundamental Modules:

- E5-PCM-23 Pre-calculus Mathematics (10)
- E5-EWP-20 Engineering Workshop Practice (10)
- E5-PEE-23 Principles of Electrical Engineering (10)
- C5-CE1-20 Computer and its essentials – 1 (10)
- E5-GC1-23 General Chemistry – 1 (15)
- E5-PH1-23 Physics – 1 (15)
- E5-PH2-23 Physics – 2 (15)
- E5-GC2-23 General Chemistry – 2 (15)
- E5-EM1-23 Engineering Mathematics – 1 (10)
- C6-CE2-20 Computer and its essentials – 2 (10)
- E6-LAM-23 Linear Algebra (10)
- D6-ASM-20 Academic writing for STEM (10)
- E6-EM2-23 Engineering Mathematics – 2 (10)
- E6-EM3-23 Engineering Mathematics – 3 (10)
- E6-EM4-23 Engineering Mathematics – 4 (10)

Core modules:

- E5-END-20 Engineering Drawing (10)
- E6-PPC -23 Procedural Programming in C and Python (10)
- E6-SAS-23 Signals and System Design (10)
- E6-ECA-23 Electrical Circuit Analysis (10)
- E6-EMW-23 Electromagnetism & Waves (10)
- E7-SES-23 Sustainable Energy Systems (10)
- E7-PTD-23 Power Transmission and Distribution (10)
- E7-AMT-23 Applied mechanics and thermo-fluids (10)
- E6-EDC-23 Electronic Devices and Circuits (10)
- E6-DP1-23 Year 2 design make project (10)
- E6-AET-23 Analogue Electronic Circuits Design (10)
- E6-DET -23 Digital Electronics (10)
- E6-ADE-23 Analog and Digital Electronics Lab (10)
- E7-MAD-23 Microprocessor & Microcontrollers Design (10)
- E7-MML-23 Microprocessor & Microcontroller Design Lab (10)
- E7-DSP-23 Digital Signal Processing (10)
- E7-CSD-23 Control System Design (10)
- E7-CSL-23 Control System Design Laboratory (10)
- E7-DP2-23 Year 3 design make project (10)
- E7-IPP-23 Instrumentation and PLC programming (10)
- E8-RMS-20 Research Methods in STEM (10)
- E8- EPS-23 Electrical Power Systems Design (10)
- E8-ESL-23 Electrical Power Systems Design Lab (10)
- E8-EMD-23 Electrical Machines and Drives (10)
- E8-EML-23 Electrical Machinery Lab (10)
- E7-EED-23 Electrical Engineering Design (10)
- E7-PSA-23 Power System Analysis (10)
- E8 -EIS-23 Engineers in Society (10)
- B8- ENT-23 Entrepreneurship and Innovation (10)
- E8-POD-23 Power Electronics and Drives (10)
- E8-PR1-23 Research Project 1 (10)
- E8-ESD-23 Embedded System Design (10)
- E7-HVE-23 High Voltage Engineering (10)
- E8-MEC-23 Modern Energy Conversion (10)
- E8-PR2-23 Research Project 2 (10)
- E8-PPR-23 Professional Practice (60)

*The programmes offered in this document are accredited by BQA and offered at Botho University at the time of print. Please refer to your offer letter from the admissions department for any changes in programme name or duration that may occur due to regulatory requirements.

Elective Modules:

- E7-MSS-23 Measurement Systems (10)
- E7-PSG-23 Protection and Switchgear (10)
- E7-MIN-23 Medical Instrumentation (10)
- E7-PER-23 Power Electronics for Renewable Energy Systems (10)
- E7-CDE-23 CAD design of Electrical services (10)
- E7-EEC-23 Engineering Economics (10)

Recommended full-time study path (5½ years):

Semester 1
- E5-PH1-23, E5-GC1-23, C5-CE1-23, E5-PEE-23, E5-EWP-20, E5-PCM-23

Semester 2
- E5-PH2-23, E5-GC2-23, E5-EM1-23, E5-END-20, C6-CE2-20, E6-LAM-23

Semester 3
- E6-PPC -23, D6-AWS-20, E6-EM2-23, E6-SAS-23, E6-ECA-23, E6-EMW-23

Semester 4
- E7-SES-23, E7-PTD-23, E6-EM3-23, E7-AMT-23, E6-EDC-23, E6-DP1-23

Semester 5
- E6-AET-23, E6-DET -23, E6-ADE-23, E6-EM4-23, E7-MMD-23, E7-MML-17

Semester 6
- E7-DSP-23, E7-CSD-23, E7-CSL-23, E7-DP2-23, E7-IPP-23, E8-RMS-20

Semester 7
- E8- EPS-23, E8-ESL-23, E8-EMD-23, E8-EML-23, E7-EED-23, **select one** (E7-MSS-23, E7-PSG-23, E7-MIN-23)

Semester 8
- E7-PSA-23, E8-EIS-23, B8- ENT-23, E8-POD-23, E8-PR1-23, **select one** (E7-PER-23, E7-CDE-23, E7-EEC-23)

Semester 9
- E8-ESD-23, E7-HVE-23, E8-MEC-23, E8-PR2-23

Semester 10
- E8-PPR-23

Admissions Criteria

1) Applicants are expected to have successfully completed secondary schooling. The typical entry requirement is BGCSE or IGCSE (in Botswana), LGCSE (in Lesotho) or other equivalent secondary school qualification.

2) BGCSE/equivalent with minimum Pass (D) in 5 subjects including English, Mathematics and Physics/Double Sciences/Physics + Chemistry.

3) Applicants in possession of a Diploma or Higher Diploma in related field will be given exemptions based on the credit point equivalency.

4) For enquiries and more information please visit our **General Admissions Information page.**

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Program Version Course List

22-12-2023

Course Code	Course Description	Credits	Elective List	Pre-Requisite List	Co-Requisite List	PreElect	ResourceList
EEN8BO23BW	**Bachelor of Engineering in Electrical Engineering**			**Weeks:208.00** **Credits: 600.00**			

Core

Course Code	Course Description	Credits
B8-ENT-23	Entrepreneurship and Innovation	10.00
C5-CE1-20	Computer and its Essentials 1	10.00
D6-AWS-20	Academic Writing for STEM	10.00
E5-END-20	Engineering Drawing	10.00
E5-EWP-20	Engineering Workshop Practice	10.00
E5-GC1-23	General Chemistry -1	15.00
E5-PCM-23	Pre-Calculus Mathematics	10.00
E5-PEE-23	Principles of Electrical Engineering	10.00
E5-PH1-23	Physics-1	15.00
E6-ADE-23	Analog and Digital Electronics Lab	10.00
E6-DP1-23	Year 2 Design Make Project	10.00
E6-EDC-23	Electronic Devices and Circuits	10.00
E7-AMT-23	Applied Mechanics and Thermofluids	10.00
E7-EED-23	Electrical Engineering Design	10.00
E7-HVE-23	High Voltage Engineering	10.00
E7-IPP-23	Instrumentation and PLC programming	10.00
E7-MMD-23	Microprocessor & Microcontrollers Design	10.00
E7-MML-17	Microprocessor & Microcontroller Design Lab	10.00
E7-PSA-23	Power System Analysis	10.00
E7-SES-23	Sustainable Energy Systems	10.00
E8-EIS-23	Engineers in Society	10.00
E8-EML-23	Electrical Machinery Lab	10.00
E8-ESD-23	Embedded System Design	10.00
E8-MEC-23	Modern Energy Conversion	10.00
E8-PPR-23	Professional Practice	60.00

Course Code	Course Description	Credits	Elective List	Pre-Requisite List	Co-Requisite List	PreElect	ResourceList
E8-PR2-23	Research Project 2	10.00					
C6-CE2-20	Computer and its Essentials 2	10.00		C5-CE1-20 - Computer and its Essentials 1C5-CE1-20 - Computer and its Essentials 1			
C7-RMS-20	Research Methods for STEM	10.00		C5-MAT-20 - Mathematics			
E6-PPC -23	Procedural Programming in C++ and Python	10.00		C6-CE2-20 - Computer and its Essentials 2			
E8-PR1-23	Research Project 1	10.00		C7-RMS-20 - Research Methods for STEM			
E6-EM2-23	Engineering Mathematics-2	10.00		E5-EM1-23 - Engineering Mathematics-1			
E6-SAS-23	Signals and System Design	10.00		E5-EM1-23 - Engineering Mathematics-1			
E5-GC2-23	General Chemistry -2	15.00		E5-GC1-23 - General Chemistry -1			
E5-EM1-23	Engineering Mathematics-1	10.00		E5-PCM-23 - Pre-Calculus Mathematics			
E6-LAM-23	Linear Algebra	10.00		E5-PCM-23 - Pre-Calculus Mathematics			
E6-ECA-23	Electrical Circuit Analysis	10.00		E5-PEE-23 - Principles of Electrical Engineering			
E5-PH2-23	Physics -2	15.00		E5-PH1-23 - Physics-1			
E6-EMW-23	Electromagnetism & Waves	10.00		E5-PH1-23 - Physics-1			
E8-POD-23	Power Electronics and Drives	10.00		E6-AET-23 - Analogue Electronic Circuits Design			
E7-DP2-23	Year 3 Design Make Project	10.00		E6-DP1-23 - Year 2 Design Make Project			
E7-PTD-23	Power Transmission and Distribution	10.00		E6-ECA-23 - Electrical Circuit Analysis			
E8-EMD-23	Electrical Machines and Drives	10.00		E6-ECA-23 - Electrical Circuit Analysis			
E8-EPS-23	Electrical Power Systems Design	10.00		E6-ECA-23 - Electrical Circuit Analysis			
E8-ESL-23	Electrical Power Systems Design Lab	10.00		E6-ECA-23 - Electrical Circuit Analysis			
E6-AET-23	Analogue Electronic Circuits Design	10.00		E6-EDC-23 - Electronic Devices and Circuits			

Course Code	Course Description	Credits	Elective List	Pre-Requisite List	Co-Requisite List	PreElect	ResourceList
E6-DET-23	Digital Electronics	10.00		E6-EDC-23 - Electronic Devices and Circuits			
E6-EM3-23	Engineering Mathematics-3	10.00		E6-EM2-23 - Engineering Mathematics-2			
E6-EM4-23	Engineering Mathematics-4	10.00		E6-EM3-23 - Engineering Mathematics-3			
E7-CSD-23	Control System Design	10.00		E6-EM3-23 - Engineering Mathematics-3			
E7-CSL-23	Control System Design Laboratory	10.00		E6-EM3-23 - Engineering Mathematics-3			
E7-DSP-23	Digital Signal Processing	10.00		E6-SAS-23 - Signals and System Design			
51		**580.00**					

Elective

Course Code	Course Description	Credits	Elective List	Pre-Requisite List	Co-Requisite List	PreElect	ResourceList
ELEC	Semester 7 Electives	10.00	E7-MSS-23 - Measurement Systems, E7-PSG-23 - Protection and Switchgear, E7-MIN-23 - Medical Instrumentation				
ELEC	Semester 8 Electives	10.00	E7-PER-23 - Power Electronics for Renewable Energy Systems, E7-CDE-23 - CAD Design of Electrical services, E7-EEC-23 - Engineering Economics				
2		**20.00**					
53		**600.00**					