

Bachelor of Engineering Technology in Electronic Engineering

Location: Steve Biko Campus, S-Block, S8 Level 3

DESCRIPTION OF THE PROGRAMME

The undergraduate programme in electronic engineering, which leads to the internationally accredited BEngTech degree, is designed to provide a broad foundation in electronic engineering through a combination of classroom lectures, online tools and extensive hands-on technical training as well as laboratory work. The qualification prepares the student for a career in the variety of electronic engineering fields as well as becoming a competent practicing engineering technologist or certificated engineer that will make a meaningful contribution to the economy and national development.

The programme will provide the student with a strong foundation in mathematics, physical sciences and the core fundamentals of engineering and blends theory, concept and application. Electronic engineering finds itself at the heart of the burgeoning Industry 4.0 and merges fields such as telecommunications, control systems, embedded and intelligent systems, data analytics and machine intelligence, automation and robotics, signal and image processing, smart factories and cities, green energy, AI and the industrial IoT.

Some of the key attributes of the programme include the fostering of lifelong learnership, the need for continuous improvement, teamwork and the attainment of solid critical thinking and problem-solving skills. The BEngTech qualification will also allow for further study through articulation into the postgraduate NQF level 8 BEngTech Honours programme, to be offered at DUT, and the subsequent opportunity for masters and doctoral research.

Qualified candidates may register with the internationally affiliated Engineering Council of South Africa (ECSA) as Professional Engineering Technologists and/or Professional Certified Engineers.

CAREER OPPORTUNITIES

Qualified electronic engineering professionals are highly sought after by industry. An electronic engineer may find opportunities in a wide range of industries including microelectronics, fixed and wireless communications, networking, automation and robotics, intelligent systems, automotive, rail, renewable and green energy, paper, sugar, water, defence, aerospace, marine, software and ICT, systems analysis and machine learning and AI.

ENTRY REQUIREMENTS

The minimum entry requirement is the National Senior Certificate or the National Certificate (Vocational) with appropriate module combinations and levels of achievement as defined in the *Government Gazette*, Vol. 751, No. 32131 of 11 July 2008, and in the *Government Gazette*, Vol. 533, No. 32743, November 2009. In addition, the minimum admission requirements, rule G7, is stipulated in the General Rules Handbook.

Further to the above, the following are required for admission into BEngTech (Electronic Engineering) programme:

(A) NSC, NCV, SC:

| Compulsory Subjects | National Senior Certificate | National Certificate (Vocational) | Senior Certificate | |
|---------------------|-----------------------------|-----------------------------------|--------------------|----|
| | Rating | Mark | HG | SG |
| English | 4 | 60% | E | C |
| Mathematics | 4 | 70% | E | C |
| Physical Science | 4 | 70% | E | C |
| Life Orientation | | 60% | | |
| | | + 2 Vocational Subjects (70%) | | |

Note:

1. The subject NSC Mathematical Literacy will not be accepted as a substitute for the subject NSC Mathematics.
2. The exit certificate of the candidate must qualify the candidate for degree study (Bachelor's Pass) at an institution of higher learning
3. Applicants will be ranked according to the sum of their scores for Mathematics and Physical Science, subject to a minimum combined score of 120.

(B) OTHER:

Applicants, that qualify for degree study (Bachelor's Pass) at an institution of higher learning, but do not meet the departmental mathematics and/or physical science requirements, may present the following N4 subjects, for consideration for entry to the BET programme:

- Mathematics and Engineering Science, plus any two of the following:
- Industrial Electronics OR Electronics
- Digital Systems OR Logic Systems
- Electrotechnics

The above subjects must be passed with a minimum of 50% and all in the same sitting. Students will then be considered alongside the NSC students according to the sum of their marks for N4 Mathematics and Engineering Science, subject to a minimum combined score of 120.

NOTE: G7 (3) ADMISSION REQUIREMENTS BASED UPON WORK EXPERIENCE, AGE AND MATURITY

For admission to entry level DEGREE studies:

A person may, subject to such requirements as the Senate may determine, be admitted if such a person is in possession of a National Senior Certificate, Senior Certificate or an equivalent certificate, but lacks the minimum requirements for admission to the degree provided that:

- (a) The person shall have reached the age of 23 in the first year of registration and shall have at least: three years' appropriate work experience; and/or capacity for the proposed instructional programme, which shall be assessed by a Senate-approved admission assessment comprising of a DUT Standardised Assessment Test for Access and Placement (SATAP), Academic Literacies (AL) & English for Academic Purposes (EAP) (2,5 hours) and/or an appropriate subject or programme specific written assessment designed and marked by the relevant Department; and the person has obtained
- (b) A conditional certificate of exemption from the Matriculation Board (when in possession of the Senior Certificate (SC)); OR has met
- (c) The requirements for Senate discretionary admission (when in possession of the NSC or equivalent), where Senate is satisfied the applicant has shown sufficient academic ability to ensure success, and that the person's standard of communication skills, and/or work experience are such that the person, in the opinion of the Senate, should be able to complete the proposed instructional programme successfully.
- (d) The person's application for admission in terms of with work experience, age and maturity is approved prior to registration.

CONTENT OVERVIEW AND ACCREDITATION LEVEL

The programme is structured according to the modules as referred to in the table below. All modules listed are compulsory to qualify in this programme. The programme is offered on a full-time basis and require attendance to lectures.

NB: For semester programmes there would be a single registration for semester 1 and semester 2 at the beginning of each academic year.

| Name of Module | Subject Code | HEQSF Level | SAQA Credits |
|---------------------------------------|--------------|-------------|--------------|
| Engineering Mathematics 1A | EMTA101 | 5 | 12 |
| Engineering Physics 1A | EPHA101 | 5 | 12 |
| Electrical Principles 1 | ELEP101 | 5 | 12 |
| Analogue Electronics 1A | ANLA101 | 5 | 12 |
| Digital Electronics 1A | DGEA101 | 5 | 12 |
| Computer and IT | CPUT101 | 5 | 8 |
| Cornerstone 101 | CSTN101 | 5 | 12 |
| Engineering Mathematics 1B | EMTB101 | 5 | 12 |
| Engineering Physics 1B | EPHB101 | 5 | 12 |
| Electrical Principles 2 | ELEP201 | 6 | 12 |
| Analogue Electronics 1B | ANLB101 | 6 | 12 |
| Digital Electronics 1B | DGEB101 | 6 | 12 |
| Technical Literacy | TCLT101 | 5 | 8 |
| TOTAL CREDITS SEMESTER 1&2 | | | 148 |

| Name of Module | Subject Code | HEQSF Level | SAQA Credits |
|--|--------------|-------------|--------------|
| Engineering Mathematics 2A | EMTA201 | 6 | 12 |
| Fundamentals of Power Engineering 2A | FUPE201 | 6 | 8 |
| Fundamentals of Instrumentation 2A | FIST201 | 6 | 12 |
| Fundamentals of Signals and Systems 2A | FCMC201 | 6 | 12 |
| Fundamentals of Microcontrollers 2A | MCRD201 | 6 | 12 |
| Electronic Circuit Design 2A | ECDS201 | 6 | 12 |
| Computer Programming 2A | CPTP201 | 6 | 12 |
| Engineering Mathematics 2B | EMTB201 | 6 | 12 |
| Fundamentals of Control Systems 2B | FCNS201 | 6 | 12 |
| Communication and Network Systems 2B | FNTW201 | 6 | 12 |
| Electronic Circuit Design 2B | ECDS301 | 6 | 12 |
| Embedded Systems 2B | MCRD301 | 6 | 12 |
| Data Analytics and Computation 2B | CPTP301 | 6 | 8 |
| TOTAL CREDITS SEMESTER 3&4 | | | 148 |

| Name of Module | Subject Code | HEQSF Level | SAQA Credits |
|---|--------------|-------------|--------------|
| Process Instrumentation 3A | PINA301 | 7 | 12 |
| Control Systems 3A | CSYA301 | 7 | 12 |
| EM Theory and Wireless Communication 3A | RFEA301 | 7 | 12 |
| Digital Signal Processing 3A | DSPA301 | 7 | 12 |
| Electronic Design Project 3A | EDPA301 | 7 | 12 |
| Innovation Management and Entrepreneurship 3A | PJCT101 | 7 | 8 |
| Process Control Systems 3B | PCSB301 | 7 | 12 |
| RF Engineering 3B | RFEB301 | 7 | 12 |
| Renewable Energy 3B | RENE301 | 7 | 12 |
| Digital Image Processing 3B | DSPB301 | 7 | 8 |
| Electronic Design Project 3B | EDPB301 | 7 | 12 |
| Engineering Ethics and Professional Skills 3B | PRIM101 | 7 | 8 |
| TOTAL CREDITS SEMESTER 5&6 | | | 132 |

| | | |
|---------------------------------|--|------------|
| TOTAL CREDITS (BEngTech) | | 428 |
|---------------------------------|--|------------|

NB. The course structure and requisite modules are subject to alteration.

Closing date for applications: 30 September 2019

CAO Code: DU-D-BGL

For further information kindly contact:

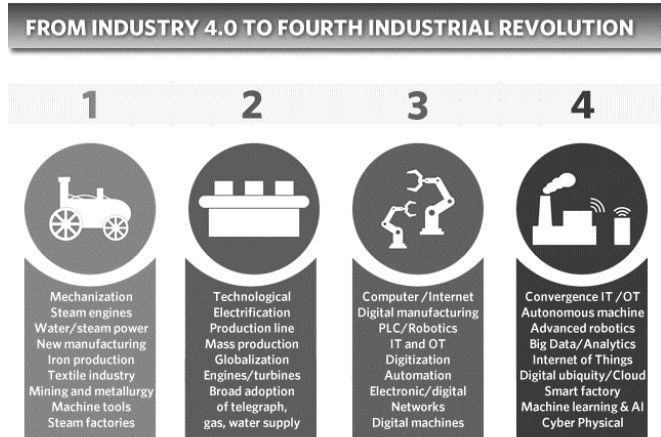
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For applications kindly contact:

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Address letters to:

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 Private Bag X06
 Dalbridge 4014
 Tel: (031) 268 4444
 Fax: (031) 268 4422
 Apply Online: <http://www.cao.ac.za>



CAREER INFORMATION

BACHELOR OF ENGINEERING TECHNOLOGY IN

ELECTRONIC ENGINEERING

1 JANUARY – 31 DECEMBER



2020

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