

Bachelor of Engineering Technology in Mechanical Engineering

Location

Steve Biko Campus, Mechanical Engineering Department.
(S5 Level 3)

Description of the Programme:

What Is Mechanical Engineering?

In almost every aspect of modern life, from the air-conditioned offices to the modern industrial plants, from the simplest components the aerospace industry, one sees the work of mechanical engineers who continue to develop and apply new knowledge and technology to improve the quality of life of mankind. Mechanical Engineering is one of the widest forms of all industrial based occupations, ranging across every stage of the manufacturing process and includes design, draughting, assembly, quality assurance, plant operation, maintenance and management.

Today's mechanical engineer is heavily involved in the development and use of new materials and technologies, especially in computer aided engineering, robotics and advanced manufacturing systems. A rapidly growing field for mechanical engineers is environmental control, comprising the development of machines and processes that will produce fewer pollutants, as well as the development of new equipment and techniques to reduce or remove existing pollution.

Who Is a Mechanical Engineer?

A mechanical engineer is an individual, who is highly motivated, has good analytical and quantitative skills, wants to be in a challenging and rewarding career, and sees themselves as future leaders in industry.

Mechanical engineers will find themselves dealing with all aspects of production, manufacturing, management and development. They will be involved with artisans, tradesmen, technicians, production managers and many others who work in teams to keep industry turning. In the past engineers were purely the products of universities, who worked with their brains and computers but their role has widened and the scope changed.

Mechanical Engineers can be found at the highest rungs of the industrial ladder designing racing cars, running companies and conducting research programmes.

But Can He/She also Specialise?

Yes, and some of them do. In recognising this, we at the Durban University of Technology offer an appropriate mix of subjects, laboratory sessions and project work which will enable him/her to become, for example, a mechanical engineering designer or plant engineer. For the design specialisation, he/she will make use of a comprehensive draughting and computer-aided design facility. Specialisation is also the emphasis of further education programmes where the subject choices should enable him/her to hold his/her own in a very challenging engineering environment. Further studying can be undertaken to do a Masters and even a Doctorate if he/she wishes.

Career opportunities Where Does He/she Work?

Graduates of this programme would be eligible to register with ECSA as a Professional Engineering Technologist. Owing to the ubiquitous nature, he/she is to be found in all manner of industries: those making steel and bricks; building oil rigs and dams; refining oil and sugar; offering services, such as those provided by Eskom, in the automotive industry such as Toyota, and the water boards and other government organisations. Opportunities also exist in the Maritime industry.

In each of these industrial sectors you will find him/her employed as production engineers, maintenance engineers and design engineers in developmental work. Mechanical engineers can also be found in the sales of hi-tech equipment.

Entry Requirements

The minimum entry requirement is the National Senior Certificate or the National Certificate (Vocational) with appropriate subject 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 Mechanical Engineering.

1) NSC, NCV, SC:

| Compulsory Subjects | National Senior Certificate Rating | National Certificate, (Vocational) Mark | Senior Certificate | |
|--|------------------------------------|---|--------------------|----|
| | | | HG | SG |
| Mathematics | 4 | | | |
| Physical Science | 4 | | | |
| English (Primary), or English (First additional) | 4 | | | |
| English | | 60 % | | |
| | | | | |
| Mathematics | | 70 % | | |
| Life Orientation | | 60 % | | |
| Physical Science | | 70 % | | |
| Two other relevant NCV vocational subjects | | 70 % | | |
| English | | | E | C |
| Mathematics | | | E | C |
| Science | | | E | C |

In addition to the subject requirements in the table, applicants will be ranked according to the sum of their marks for Mathematics and Physical Science, subject to a minimum combined score of 120%.

Note:

The subject NSC Mathematical Literacy will not be accepted as a substitute for the subject NSC Mathematics.

The exit certificate of the candidate must qualify the candidate for degree study at an institution of higher learning.

National Technical Certificate N4

Applicants, that **qualify for degree study** 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 two of:
- Mechanotechnics
- Engineering Drawing
- Electrotechnics

The above are all to be passed, in the same sitting, with a minimum of 50%. Students will then be ranked, 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%.

2) Other:

Prospective applicants may also present a level 6 Diploma in Engineering for entry into the BET program. The possibility of transfer of credits for cognate previous studies would be considered dependent on the disciplinary nature of the Diploma being presented.

Thereafter, selections is made at the full discretion of the Head of Department based on a number of factors including class size, equity etc.

Admission Requirement 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:

- 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
- A conditional certificate of exemption from the Matriculation Board (when in possession of the Senior Certificate (SC)); OR has met
- 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.
- The person's application for admission in terms of with work experience, age and maturity is approved prior to registration.

Applicants intending to gain admission through work experience, age and maturity must submit their applications at least four months before commencement of the academic year.

NB: These minimum admission requirements may be subject to more restrictive departmental admission requirements where applicable.

Programme modules

The modules for the BET(Mechanical) Degree Programme are listed below.

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

First Year Curriculum Semester I

| | |
|----------------------------|---------|
| Engineering Mathematics 1A | EMTA101 |
| Engineering Physics 1A | EPHA101 |
| Technical Literacy | TCLT101 |
| Computing & IT | CMIT101 |
| Cornerstone 101 | CSTN101 |
| Design I | DESG101 |

Semester 2

Electrical Principles 1
Mechanics of Machines 1
Engineering Mathematics 1B
Thermofluids 1
Strength of Materials 1
Engineering Physics 1B

ELEPI01
MCHM102
EMTB10
THFL101
SMTL101
EPHB101

Second Year Curriculum

Semester 3

Computer Aided Design
Analogue Electronics 1A
Electrical Principles 2
Fluid Mechanics 2
Engineering Mathematics 2A
Materials Science

CADR101
ANLE101
ELEP201
FLDM201
EMTA201
MTLS101

Semester 4

Mechanics of Machines 2
Strength of Materials 2
Design 2
Thermodynamics 2
Digital Electronics 1A
Project Management
Other:
(1) FRENCH Language,
(2) MANDARIN Language, and
(3) SOCIOLOGY OF WORK

MCHM201
SMTL201
DESG201
THRM202
DGTE102
PROM101

Third Year Curriculum

Semester 5

Design 3
Strength of Materials 3
Mechanics of Machines 3
Thermodynamics 3
Fluid Mechanics 3
Instrumentation and Control 1
Other:
(1) FRENCH Language,
(2) MANDARIN Language, and
(3) SOCIOLOGY OF WORK

DESG301
SMTL301
MCHM301
THRM302
FLDM301
INCT101

Semester 6

Advanced Mechanical Manufacturing
Electrical Technology Applications
Principles of Management
Environmental Engineering
Capstone Design Project
Numerical methods

AMNF101
ELTA101
PMNT101
EVLE101
CDSP101
NMRM101

In addition to passing all the modules students are required to be competent in the 10 Exit Level Outcomes (ELO) below:

Exit Level Outcome 1: Problem Solving
Exit Level Outcome 2: Application of scientific and engineering knowledge
Exit Level Outcome 3: Engineering Design
Exit Level Outcome 4: Investigation
Exit Level Outcome 5: Engineering methods, skills, tools, including Information technology
Exit Level Outcome 6: Professional and Technical Communication

Exit Level Outcome 7: Impact of Engineering Activity
Exit Level Outcome 8: Individual and Teamwork
Exit Level Outcome 9: Independent Learning
Exit Level Outcome 10: Engineering Professionalism

Closing Date for Applications: 30 September 2019

For Further Information

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Application Forms

Contact the **Central Applications Office (CAO)**

CAO code: DU-D-BGM

Address letters to:
Central Applications Office Private Bag X06
Walbridge 4014
Tel: (031) 2684444
Fax: (031) 2684422
Apply Online: <http://www.cao.ac.za>



CAREER INFORMATION

BACHELOR OF ENGINEERING TECHNOLOGY IN

**MECHANICAL
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1 JANUARY – 31 DECEMBER 2020

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**DEPARTMENT OF
MECHANICAL
ENGINEERING**

2020

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