Bachelor of Engineering Technology in Chemical Engineering

Location: Steve Biko Campus ($4 Level 1)

Description of the Programme

The learning programme consists of a coherent assembly of knowledge areas associated with chemical engineering practice, these include: mathematics, natural sciences, engineering sciences, design and synthesis, computing and IT, and relevant complementary studies. This assembly of knowledge areas provides a viable platform for further studies and lifelong learning, and will produce graduates who can function in today’s fast-changing, dynamic and evolving industrial marketplace.

The broad training in natural and mathematical sciences, coupled with a strong foundation in chemical engineering principles, will produce graduates that are highly numerate and have skills in problem solving, teamwork, communication and Information Technology. This qualification is designed to provide the graduate with knowledge and attributes to work in a diverse spectrum of industries including the chemical, petrochemical, pulp and paper, polymer, mining, water and waste water treatment, energy, food and pharmaceutical industries. The key attributes of the graduates of this qualification are:

- The ability to apply established and newly developed engineering technology to solve broadly-defined problems and develop components, systems, services and processes.
- The ability to provide leadership in the application of technology in safety, health, engineering and commercially effective operations and have well-developed interpersonal skills.
- Working independently and responsibly, applying judgement to decisions arising in the application of technology and health and safety considerations to problems and associated risks.
- A specialized understanding of engineering sciences with a deep underlying knowledge of specific technologies together with financial, commercial, legal, social and economic, health and environmental matters.

This qualification provides the educational base for registration as a candidate Professional Engineering Technologist with the Engineering Council of South Africa (ECSA) and is recognized internationally.

Career Opportunities

A Chemical Engineering Technologist is employed in chemical plants for the purpose of: research and development; economic evaluation; chemical engineering design; plant operations and management; project management and product marketing.

Why do Chemical Engineering at Durban University of Technology?

The mission of the Department of Chemical Engineering is primarily to provide a relevant program, maintain a strong balance between theory and practice, establish and maintain partnerships with industry and excel in research and development with technology transfer through external engagement. Some of the key characteristics of the department are:

- The department is recognized as one of the leading University of Technology departments in Chemical Engineering teaching and research.
- In keeping with the philosophy of vocational training, the department has one of the most comprehensive laboratory facilities in the country.
- It has received full accreditation for all its chemical engineering programmes from the Engineering Council of South Africa.
- The department has qualified chemical engineers with a range of expertise that are responsible for teaching and research. This ensures the maintenance of high standards, a continuous cross flow of ideas, and provides the ideal basis for the transfer of the latest technology to students.
- The Department is actively involved in relevant research. The research areas include: water and wastewater treatment; membrane technology; particle technology; beneficiation of waste streams, catalysis, fuels, thermodynamics and mathematical modelling.

Selection Criteria

The following criteria are used in the final selection process:

- A minimum of 28 points is required for entry to the degree. Subjects Required: Mathematics, Physical Science, English, plus three other subjects excluding Life Orientation. The points for Mathematics and Physical Science will be doubled.
- Applicants will be ranked according to the sum of their scores for Mathematics and Physical Science, subject to a minimum combined score of 70%.
- The exit certificate of the candidate must qualify the candidate for an occupation in chemical engineering at a minimum of 70%.
- Students are ranked on merit in the final selection.

Entry Requirements

<table>
<thead>
<tr>
<th>DEPARTMENTAL NSC REQUIREMENTS</th>
<th>DEPARTMENTAL SENIOR CERTIFICATE REQUIREMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compulsory Subjects A minimum of 28 points will be considered</td>
<td>NSC Rating Code</td>
</tr>
<tr>
<td>English (home) OR English</td>
<td>A Senior Certificate with a pass in English or equivalent qualification.</td>
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<tr>
<td>Mathematics</td>
<td>Compulsory Subjects</td>
</tr>
<tr>
<td>Physical Science</td>
<td>Rating</td>
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<tr>
<td>NB: Mathematical Literacy will not be considered.</td>
<td>English or equivalent</td>
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<tr>
<td>A pass in the subjects Technical Drawing and/or Computer Studies will be an added recommendation.</td>
<td>Physical Science</td>
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National Certificate (Vocational) Level 4

A minimum mark of 60% for English and Life Orientation. Mathematics and Physical Science at 70-79% and two other additional vocational subjects related to the field of chemical engineering at a minimum of 70-79%.

Terms and Conditions

The courses offered are current and relevant because the Department of Chemical Engineering is extensively involved in the transfer of scientific discoveries into modern manufacturing technologies for the production of chemical and products that benefit society. They are involved in the development and manufacture of consumer products, as well as in design, operation and control of processes in a variety of industries (e.g., petroleum, petrochemical, chemical, consumer products, food, feed and pharmaceuticals).

Examples of some typical chemical engineering operations in South Africa include:

- The conversion of crude oil into petrol, diesel, wax, etc.
- The conversion of wood into paper products.
- The extraction of sugar from sugarcane.
- The conversion of coal into petrol and other useful products.
- The extraction of precious minerals

We make daily use of products that are obtained via the principles of chemical engineering, e.g.: paper, plastic materials, textiles, petrol, fertilizers, drinkable water etc.

What is Chemical Engineering?

Chemical Engineering is a science that involves the study of processes required for the conversion of raw materials into useful products with minimum environmental impact. It uses the application of physical and life sciences, mathematics, economics and engineering sciences to produce, transform, and transport chemicals, materials and energy.
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:

(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.

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

Semester One

Engineering Mathematics 1A  EMTH101
Engineering Chemistry 1A  ENCM101
Cornerstone101
Engineering Physics 1A  EPH101
Chemical Engineering Fundamentals 1A  CEFA101
Technical Literacy  TCHL101

Semester Two

Engineering Mathematics 1B  EMTH101
Engineering Chemistry 1B  ENCM101
Computer Applications 1A  CMAP101
Engineering Physics 1B  EPH101
Chemical Engineering Fundamentals 1B  CEFA101
Chemical Engineering Design 1  CEDA101

Second year Curriculum

Semester One

Engineering Mathematics 2A  EMTH201
Engineering Chemistry 2A  ENCM201
Computer Applications 2A  CMAP201
Process Fluid Flow  PPF101
Chemical Engineering Laboratory 1A  CEFA101
Chemical Engineering Design 2A  CEDA201
Principles of Management  PCPR101

Semester Two

Transfer Processes  TRFP101
Applied Statistics  APS101
Process Safety and Occupational Health  PSOH101
Applied Thermodynamics  APTh101
Chemical Engineering Laboratory 1B  CEFA101
Chemical Engineering Design 2B  CEDA201

Third year Curriculum

Semester One

Environmental Engineering  ENVN101
Chemical Thermodynamics  CTHM101
Unit Operations  UNOP101
Multistage Operations  MSOP101
Chemical Engineering Laboratory 2A  CEFA101
Chemical Engineering Design 3A  CEDA301

Semester Two

Particle Technology  PTCT101
Reaction Engineering  RCNE101
Process Control  PCSC101
Project Management  PCMM101
Chemical Engineering Laboratory 2B  CEFB201
Chemical Engineering Design 3B  CEDA301

Closing Date for Applications: 30 September 2019
CAO Code: DU-D-EC
Application Forms

Contact the Central Applications Office (CAO)
Address letters to:
Central Applications Office
Private Bag X06
Dalbridge 4014
Tel: (031) 2684444
Fax: (031) 2684422

For Further Information,
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