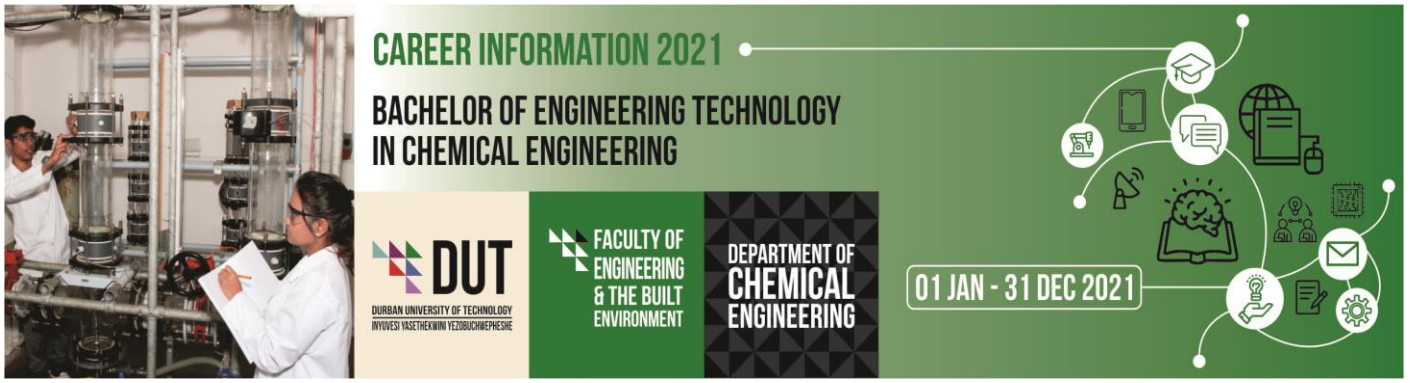

NQF 7
SAQA ID: 98955

Bachelor of Engineering Technology in Chemical Engineering

Location: Steve Biko Campus (S4 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, safety 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 through the Sidney Accord.

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.

Chemical engineering professionals are 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.

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 recognised 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.

The courses offered are current and relevant because the Department of Chemical Engineering has extensive interaction with the chemical industry, research organisations, The South African Institution of Chemical Engineers and the Engineering Council of South Africa.

Entry Requirements BET (Chemical Engineering)

NATIONAL SENIOR CERTIFICATE (NSC) (01 January 2009)		**SENIOR CERTIFICATE (SC) (PRE 2009)**			**NATIONAL CERTIFICATE (VOCATIONAL) (NCV)**	
NSC DEGREE ENTRY With 28 points		**SENIOR CERTIFICATE (SC) With a pass in English or equivalent**			**NATIONAL CERTIFICATE VOCATIONAL (NCV) – LEVEL 4**	
Compulsory Subjects	**NSC Rating Code**	**Compulsory Subjects**	**HG**	**SG**	**Compulsory Subjects**	**Mark**
English	4				English	60%
					Life Orientation	60%
Mathematics	4	Mathematics	C	B	Mathematics	70%
Physical Science	4	Physical Science	C	B	Physical Science	70%
A pass in the subjects Technical Drawing and/or Computer Studies will be an added recommendation.					In addition, two other additional vocational subjects at a minimum of 70%.	

NB:

1. 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 at an institution of higher learning.
3. 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.
4. Applicants with a NSC will be ranked according to the sum of their scores for Mathematics and Physical Science, subject to a minimum combined score of 120%.
5. Prospective applicants may also present an NQF level 6 Diploma in Engineering for entry into the degree programme. A possibility of transfer of credits for cognitive previous studies would be considered dependent on the discipline and nature of the Diploma being presented.
6. Students are ranked on merit in the final selection
7. The Department reserves the right to consider only 1st to 3rd choice students for Chemical Engineering.

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 is a single registration for semester 1 and semester 2 at the beginning of each academic year.

First Year Curriculum

Name of Module	Subject Code	HEQSF Level	SAQA Credits
Semester 1			
Engineering Mathematics 1A	EMTA101	5	12
Engineering Chemistry 1A	ENCA101	5	12
Cornerstone101	CSTN101	5	12
Engineering Physics 1A	EPHA101	5	12
Chemical Engineering Fundamentals 1A	CEFA101	5	12
Technical Literacy	TCHL101	5	12
Semester 2			
Engineering Mathematics 1B	EMTB101	5	12
Engineering Chemistry 1B	ENCB101	5	12
Computer Applications 1A	CMAP101	5	8
Engineering Physics 1B	EPHB101	5	12
Chemical Engineering Fundamentals 1B	CEFB101	5	12
Chemical Engineering Design 1	CEDS101	5	12
TOTAL CREDITS SEMESTER 1&2			**140**

Second Year Curriculum

Semester 3			
Engineering Mathematics 2A	EMTH201	6	12
Engineering Chemistry 2A	ENCM201	6	12
Computer Applications 2A	CMAP201	6	12
Process Fluid Flow	PFFL101		6
Chemical Engineering Laboratory 1A	CELA101	6	8
Chemical Engineering Design 2A	CEDA201	6	12
Principles of Management	PCPM101	6	8
Semester 4			
Transfer Processes	TRFP101	6	12
Applied Statistics	APPS101	6	8
Process Safety and Occupational Health	PSOH101	6	12
Applied Thermodynamics	APTH101	6	12
Chemical Engineering Laboratory 1B	CELB101	6	8
Chemical Engineering Design 2B	CEDB201	6	12
TOTAL CREDITS SEMESTER 3&4			**134**

Third Year Curriculum

Semester 5			
Environmental Engineering	ENVN101	7	12
Chemical Thermodynamics	CTHM101	7	12
Unit Operations	UNOP101	7	12
Multistage Operations	MSOP101	7	12
Chemical Engineering Laboratory 2A	CELA201	7	8
Chemical Engineering Design 3A	CEDA301	7	6
Semester 6			
Particle Technology	PTCT101	7	12
Reaction Engineering	RCNE101	7	12
Process Control	PCSC101	7	12
Project Management	PMNM101	7	8

Chemical Engineering Laboratory 2B	CELB201	7	8
Chemical Engineering Design 3B	CEDB301	7	16
TOTAL CREDITS SEMESTER 5&6			**130**

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

Application

Applicants who wish to enrol for the programme must apply through the CAO system by no later than 30 November of the previous year.

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
OR
Apply Online: http://www.cao.za

CAO Code: DU-D-ECH

Closing date for applications: 30 November 2020

For Further Information

Contact the Department of Chemical Engineering
Steve Biko Campus (S4 Level 1)
Durban University of Technology
P O Box 1334
DURBAN, 4000
Tel: (031) 3732218
Fax: (031) 3732285
Email: khanyisilen@dut.ac.za

This leaflet is for information purposes only and is not binding on the Durban University of Technology.