

Career Profile: Chemical Engineer

Chemical engineers help to develop many things, e.g. plastics, polymers, paper, dyes, drugs, fertilizers, tar and petrochemicals. They use their knowledge of mathematics, chemistry, physics and economics to work out ways to make products from raw materials and convert materials into other useful forms. In South Africa chemical engineers have been at the forefront of extracting and converting coal to liquids such as petrol and diesel for many years. Chemical engineers can design new instruments and invent new processes, build facilities for implementing the processes, and even operate them. They can also help to make processes more efficient and environmentally friendly.

Education Requirements

National Senior Certificate (NSC)

For a career in chemical engineering students are advised to select English, Mathematics, and Physical Science and to add to this a selection from the designated subjects. These are subjects that are particularly suitable for tertiary study.

Bachelor Degree

Bachelor of Science in Engineering – BSc Eng (Mechanical) (4 years)

A four year degree programme that focuses on developing knowledge and skills for entry into careers in the field of chemical engineering.

Offered at these universities:

- [North-West University](#)¹ (Chemical & Minerals Engineering - Potchefstroom Campus)
- [University of Pretoria](#)² (Department of Chemical Engineering)
- [University of the Witwatersrand](#)³ (School of Chemical and Metallurgical Engineering)

Specializations Offered:

University of the Witwatersrand

Metallurgical and materials engineering

North-West University

Minerals processing

¹ http://www.puk.ac.za/fakulteite/ing/chemical/index_e.html

² <http://web.up.ac.za/default.asp?ipkCategoryID=2063>

³ <http://web.wits.ac.za/Academic/EBE/ChemMet/ChemicalEngineering.htm>

National Diploma / BTech

Students who prefer a more practical approach can enrol for programmes to qualify as a chemical engineering technologist and technician at BTech and Diploma levels. Specializations are offered in these programmes.

Admission requirements

As admission requirements vary from one institution to another, find out what the specific requirements are by checking on the website and contacting the university if you have any queries.

Registration as a professional engineer

A person who has obtained a recognised BSc(Eng) or BEng degree is eligible for registration as a Candidate Engineer. After gaining at least 3 years of appropriate practical experience a chemical engineer may apply for registration as a Professional Engineer under the auspices of the Engineering Council of South Africa.

Possible Employers

- Universities
- Government departments
- [CSIR](#)⁴
- [AECI](#)⁵
- [Eskom](#)⁶
- [Sasol](#)⁷
- [Council for Mineral Technology](#)⁸
- Paper and pulp manufacturers
- Food and beverage industry
- Chemical manufacturers
- The registered engineer with the necessary experience and initiative can work as consultant for any of the above-mentioned companies and organisations. A number of chemical engineers have set up their own consultancies.

Find out more

Find out more about chemical engineering, bursaries and jobs:

- The [South African Association of Consulting Engineers](#)⁹ will give you some idea of how engineering consultants are organised.

⁴ <http://www.csir.co.za/>

⁵ <http://www.aeci.co.za/>

⁶ <http://www.eskom.co.za/>

⁷ <http://www.sasol.co.za/>

⁸ <http://www.mintek.co.za/>

⁹ <http://www.saace.co.za/>

- The [South African job board and recruitment portal](#)¹⁰ for the South African engineering industry. [BMD](#)¹¹ contains fairly detailed information on a whole range of careers, including those in civil engineering.
- There is an excellent brief history of [chemical engineering](#)¹², written in a breezy but informative style.

¹⁰ <http://www.engineeringcareers.co.za/>

¹¹ <http://www.bmdnet.co.za/C/index.htm>

¹² http://www.pafko.com/history/h_what.html

Are you suited to this career?

This quick quiz can help you to identify whether you are suited for this occupation. The questions are based on interests, characteristics and values typical of people who work as engineers

Quiz	Yes	No
Do you have an inquiring, analytical mind?		
Do you enjoy Mathematics and Science?		
Are you good at analysing problems and finding solutions?		
Are you curious, alert and open-minded?		
Are you able to make difficult and involved calculations accurately?		
Are you able to work well with other people?		
Can you communicate your ideas clearly?		
Can you think creatively and come up with original ideas?		
Do you have above average mathematical and scientific aptitude?		
Do you want to participate in projects that will benefit the long term development of the country?		

If you have mainly yes answers it may be an indication that this is an occupation to consider.