

Career Profile: Mechanical Engineer

Almost any machine or process we use has benefited from the influence of a mechanical engineer. Everyday appliances, equipment and machines such as refrigerators, air conditioners, microwaves, high-fidelity sound equipment, elevators, cars, aircraft, and trains are possible mainly because mechanical and other engineers worked together to make them happen.

Mechanical engineers apply scientific principles to the design, development, construction, installation, operation and maintenance of manufacturing plants, industrial equipment and machinery, medical devices and many other areas in which machines are used.

Education Requirements

National Senior Certificate (NSC)

For a career in mechanical 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

The **Bachelor of Science in Engineering – BSc Eng (Mechanical) (4 years)** degree programme focuses on developing knowledge and skills for entry into careers in the field of mechanical engineering.

Offered at:

- [North-West University](#)¹ (Mechanical Engineering - Potchefstroom Campus)
- [University of Johannesburg](#)² (Department of Mechanical Engineering Science)
- [University of Pretoria](#)³ (Mechanical and Aeronautical Engineering)
- [University of the Witwatersrand](#)⁴ (School of Mechanical, Industrial and Aeronautical Engineering)

National Diploma / BTech

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

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

² <http://www.uj.ac.za/Default.aspx?alias=www.uj.ac.za/mechsci>

³ <http://web.up.ac.za/default.asp?ipkCategoryID=2163>

⁴ <http://web.wits.ac.za/academic/ebe/Mecheng/>

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 mechanical engineer may apply for registration as a Professional Engineer under the auspices of the Engineering Council of South Africa.

Possible Employers

- Government – municipalities
- Manufacturing – [Dorbyl](#), [Babcock](#)⁵, [Toyota](#)⁶
- Process – [SASOL](#)⁷, [AECI](#)⁸
- Mining – [Anglo-American](#)⁹, [Goldfields](#)¹⁰
- Service – SAA, [Spoornet](#)¹¹, [Telkom](#)¹²
- Energy provision – [Eskom](#)¹³
- Aerospace – [Denel](#)¹⁴
- Research – [CSIR](#)¹⁵
- The registered engineer with the necessary experience and initiative can work as consultant for any of the above-mentioned companies and organisations. S/he can also start her/his own engineering consultancy.

Find out more

Find out more about mechanical engineering, bursaries and jobs:

- [South African Institution of Mechanical Engineering](#)¹⁶
- [The South African Association of Consulting Engineers](#)¹⁷ will enable you to get some idea of how engineering consultants are organized.
- [The South African job board and recruitment portal](#)¹⁸ for the South African engineering industry.

⁵ <http://www.babcock.co.za/>

⁶ <http://www.toyota.co.za/>

⁷ <http://www.sasol.co.za/>

⁸ <http://www.aeci.co.za/>

⁹ <http://www.angloamerican.co.za/>

¹⁰ <http://www.goldfields.co.za/>

¹¹ <http://www.spoornet.co.za/>

¹² <http://www.telkom.co.za/>

¹³ <http://www.eskom.co.za/>

¹⁴ <http://www.denel.co.za/>

¹⁵ <http://www.csir.co.za/>

¹⁶ <http://www.saimeche.org.za/>

¹⁷ <http://www.saace.co.za/>

¹⁸ <http://www.engineeringcareers.co.za/>

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. Bear in mind that in mechanical engineering there is scope for a number of different types of people.

Quiz	Yes	No
Are you able to make difficult and involved calculations accurately?		
Do you enjoy analysing problems, and do you have an analytical mind?		
Do you like finding out how things work?		
Are you able to visualise objects in three dimensions?		
Are you comfortable taking the lead in a group?		
Are you creative and do you try different approaches when faced with a problem?		
Do you find it easy to organize and plan your work?		
Do you work well with other people and communicate clearly with them?		
Do you have good health and physical stamina?		
Are you a good decision maker and willing to accept responsibility		

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