

Career Profile: Electrical Engineer

We see the results of the work of electrical engineers all around us. Lighting in our homes, streets, offices and factories and the use of computers, appliances, equipment and machinery all rely on the application of electrical energy. Electrical engineers get involved in a wide range of applications of electrical energy. They can work in the generation of electric power, automation, and the technology for communications and information. Specialist fields include telecommunications, computer technology, information technology, control and automation, robotics, digital electronics and high voltage. This is a dynamic career as new methods and components are constantly being developed and this demands continuous improvement and renewal of existing equipment and techniques.

Education Requirements

National Senior Certificate (NSC)

For a career in electrical 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 (Electrical) (4 years)

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

Offered at:

- [North-West University](#)¹ (Electrical, Electronic and Computer Engineering)
- [University of Johannesburg](#)² (Department of Electrical and Electronic Engineering Science)
- [University of Pretoria](#)³ (Department of Electrical, Electronic and Computer Engineering)
- [University of the Witwatersrand](#)⁴ (School of Electrical and Information Engineering)

Specializations Offered:

North West University

Electrical and electronics engineering, Computer and electronic engineering

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

² <http://www.uj.ac.za/Home/tabid/2254/Default.aspx>

³ <http://web.up.ac.za/default.asp?ipkCategoryID=2108>

⁴ <http://www.ee.wits.ac.za/>

University of Johannesburg

Electrical and electronics engineering, Electrical and electronics engineering with Information technology as an endorsement

University of Pretoria

Electrical engineering, Electronics engineering, Computer engineering

University of the Witwatersrand

Electrical engineering, Information engineering

National Diploma / BTech

Students who prefer a more practical approach can enrol for programmes to qualify as electrical 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 an electrical engineer may apply for registration as a Professional Engineer under the auspices of the Engineering Council of South Africa.

Possible Employers

The registered engineer with the necessary experience and initiative can work as a consultant for any of the above-mentioned companies and organisations. S/he can also start her/his own electrical engineering consultancy.

- Government
- [Transnet](http://www.transnet.co.za/)⁵
- [Eskom](http://www.eskom.co.za/)⁶
- [IsCOR](http://www.iscor.co.za/)⁷
- [CSIR](http://www.csir.co.za/)⁸
- Municipalities
- Universities
- Manufacturers

⁵ <http://www.transnet.co.za/>

⁶ <http://www.eskom.co.za/>

⁷ <http://www.iscor.co.za/>

⁸ <http://www.csir.co.za/>



- Engineering consultants
- [Sturrock and Robson](#)⁹
- [Rand Water](#)¹⁰

Find out more

Find out more about electrical engineering, bursaries and jobs:

- [Institute of Electrical and Electronic Engineers](#)¹¹
- The [South African job board and recruitment portal](#)¹² for the South African engineering industry.

⁹ <http://www.sturrockandrobson.co.za/>

¹⁰ <http://www.randwater.co.za/>

¹¹ <http://www.ieee.org/portal/site>

¹² <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.

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?		
Do you like to take initiative?		
Can you think creatively and come up with original ideas?		
Are you able to make decisions under pressure?		
Can you visualize abstract concepts?		
Do you work well with other people?		
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.