

## Career Profile: Industrial Engineer

Industrial engineers design methods and facilities to improve the productivity of work processes, achieve quality products, eliminate waste of time, money and other resources, and contribute to workplace safety. They have a holistic view of all the components of systems, namely people, money, knowledge, information, equipment, energy, material and process. This enables them to make a significant contribution in developing integrated systems that improve efficiency, safety, productivity and profitability. In doing so, they draw on contributions from mechanical, electrical, and civil engineering as well as from the economic and human sciences. Industrial engineering is sometimes referred to as operations management or systems engineering because it can make a contribution to almost every industry and human endeavour.

## Education Requirements

### National Senior Certificate (NSC)

For a career in industrial 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 (Industrial) (4 years)** A four year degree programme that focuses on developing knowledge and skills for entry into careers in the field of industrial engineering

Offered at:

- [University of Pretoria](http://web.up.ac.za/default.asp?ipkCategoryID=2005)<sup>1</sup> (Department of Industrial and Systems Engineering)
- [University of Johannesburg](http://www.uj.ac.za/Default.aspx?alias=www.uj.ac.za/industech)<sup>2</sup> (Department of Industrial Engineering Technology)
- [University of the Witwatersrand](http://web.wits.ac.za/academic/ebe/Mecheng/)<sup>3</sup> (School of Mechanical, Industrial and Aeronautical Engineering)

### Specializations Offered:

No specializations are indicated.

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<sup>1</sup> <http://web.up.ac.za/default.asp?ipkCategoryID=2005>

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

<sup>3</sup> <http://web.wits.ac.za/academic/ebe/Mecheng/>

## National Diploma / BTech

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

## Possible Employers

- Government departments
- Municipalities
- Hospitals
- Universities
- [Transnet](#)<sup>4</sup>
- Mines
- [Iskor](#)<sup>5</sup>
- [Sasol](#)<sup>6</sup>
- [AECI](#)<sup>7</sup>
- Explosives and Chemical Industries
- [Armcor](#)

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 industrial engineers have set up their own consultancies.

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<sup>4</sup> <http://www.transnet.co.za/>

<sup>5</sup> <http://www.iscor.co.za/>

<sup>6</sup> <http://www.sasol.co.za/>

<sup>7</sup> <http://www.aeci.co.za/>

## Find out more

Find out more about industrial engineering, bursaries and jobs:

- [WITS provides a useful introduction to industrial engineering](#)<sup>8</sup>
- [South African Institute for Industrial Engineering](#).<sup>9</sup>
- [The South African Association of Consulting Engineers](#)<sup>10</sup> will enable you to get some idea of how engineering consultants are organised.
- [The South African job board and recruitment portal](#)<sup>11</sup> for the South African engineering industry.
- Examples of consulting firms in the Gauteng area, and members of SAACE, which offer a range of engineering disciplines:
  - [RSV: Consulting Engineers & Project Managers](#)<sup>12</sup>
  - [Africon](#)

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<sup>8</sup> <http://web.wits.ac.za/Academic/EBE/MechEng/Undergraduate/Industrial/Industrial.htm>

<sup>9</sup> <http://www.saiie.co.za/>

<sup>10</sup> <http://www.saace.co.za/>

<sup>11</sup> <http://www.engineeringcareers.co.za/>

<sup>12</sup> <http://www.rsv.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
Are you good at Mathematics and Science?		
Are you curious and creative?		
Are you able to analyse situations critically?		
Do you approach tasks in an orderly and systematic way?		
Are you able to work well with other people even if their views are different from your own?		
Are you able to adapt to different situations and demands?		
Are you able to combine a number of different ways of looking at things?		
Can you communicate clearly both orally and in writing?		
Do you find it easy to take the lead in a group?		
Are you interested in a career in which you can work to improve the efficiency of business and manufacturing processes?		

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