

A matriculation exemption from the South African Matriculation Board is a prerequisite for study at any South African university. Application for such an exemption may be made to the Matriculation Board, PO Box 3854, Pretoria, 0001, South Africa, tel. no. (002712) 429-2446. The combined minimum requirements for matriculation exemption and admission to undergraduate engineering studies may generally be expressed as:

- a minimum of five subjects must be passed in Grade 12
- of which a minimum of four subjects must be passed at HIGCSE-level (or Higher Grade or A-level)
- and one may be passed at IGCSE level (or Standard Grade or O-level)
- in all of which a minimum pass mark of either 3 (HIGCSE subjects) or C (IGCSE subject) must be obtained
- the four HIGCSE subjects must include Mathematics, Physical Science and English, or Mathematics, Physics, Chemistry and English
- one of the five subjects must be a second language (HIGCSE- or IGCSE-level), other than English, approved by the SA Matriculation Board.

A student who marginally fails to meet these requirements may still succeed in obtaining conditional exemption and admission to university, which is generally linked to the condition that the student obtains a first-year pass in prescribed university study subjects.

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This brochure was compiled from a publication graciously provided by the Ministry of Labour and Human Resources Development, 32 Mercedes St, Private Bag 19005, Khomasdal, from whom a more comprehensive guide may be purchased.

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## ENGINEERING AS A PROFESSION



### Introduction

Engineering can be described as the harnessing of materials and forces of nature, through scientific knowledge and information to produce goods and services which people use and need to improve their living standards, welfare and safety.

The word "engineer" is derived from the Latin word "ingenium", which means inventive or ingenious. However, the engineer is not the only partner in the engineering labour force. In the total labour force, six distinct categories may be identified.

#### *(a) Handyman/Labourer*

A handyman/labourer receives mainly in-service-training. He/she will perform ordinary/simple tasks or duties.

#### *(b) Operator*

The training of an operator is not prescribed by law as in the case of an artisan. The entry requirements could be as low as that of a handyman or at a level equal to that of a qualified artisan, or even higher. In-service-training is mainly provided by the employer.

#### *(c) Artisan*

An artisan completes his/her training by means of an apprenticeship. This

normally takes between three to five years to complete, with the minimum educational qualification of a Grade 10 certificate, age of 16 years and a pass in the subject English as entry requirement.

Artisans receive theoretical training at a technical college and the practical training is usually provided by suitable employers.

Prospective artisans can choose from a range of possible apprenticeships: fitting and turning, electronics, instrumentation, auto-mechanics, etc..

#### *(d) Technician*

A technician's tasks/duties are a bit more extensive than that of an artisan. He/she forms an important linkage between the engineer and the different duties/tasks that exist in the engineering industry.

The technician will study for a National Diploma (N.Dip.) in the field of his/her interest. The training period is three years; 24 months theoretical training at a technikon (first and third year) and 12 months practical training (second year) at a suitable employer. The technician can complete a National Higher Diploma, which includes one semester of practical training at a technikon, and practical training at an approved employer in order to qualify as technologist.

#### *(e) Incorporated Engineer*

To become an incorporated engineer, a technician may receive further training and obtain a B.Tech. from a technikon. Persons with a B.Tech. can also complete the M.Tech. and D.Tech. The work of an incorporated engineer is parallel and in addition to that of a professional engineer. Strong emphasis is placed on the practical and pragmatic training of the incorporated engineer. In

practice, the incorporated and professional engineer can function independently of each other.

#### *(f) Professional Engineer*

The professional engineer should have a B.Eng. or B.Sc. (Eng.) qualification. The daily work of an engineer is not repetitive but rather consists of numerous tasks such as designing, development, production, research, planning, management etc.

#### **Registration**

After completion of his/her degree or diploma, a student may register at the Engineering Council of Namibia as a technician or engineer in training. After a minimum post-qualification training period of three years with an approved employer, a person may then apply for registration as an engineering technician, incorporated engineer or professional engineer at the Engineering Council of Namibia. Registration occurs in the candidate's respective field of specialisation (e.g. civil, electrical, mechanical).

#### **Engineering studies**

Prospective technicians and incorporated engineers should contact the Polytechnic of Namibia regarding courses offered and admission requirements. South African technikons will consider an application of a prospective Namibian student only in exceptional cases.

Currently, no facilities exist in Namibia for studying towards a B.Sc. (Eng.) or B.Eng. degree. South African universities, though, do still accept Namibian applicants for both undergraduate and post-graduate study in engineering.