Tanzania

Engineers Registration Act, 1997

Engineers Registration (General and Practical Training Requirements) Regulations, 1988

Government Notice 171 of 1988

Legislation as at 31 July 2002

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Engineers Registration (General and Practical Training Requirements) Regulations, 1988
Contents

Tanzania

Engineers Registration Act, 1997

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Government Notice 171 of 1988

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[Note: This legislation has been thoroughly revised and consolidated under the supervision of the Attorney General's Office, in compliance with the Laws Revision Act No. 7 of 1994, the Revised Laws and Annual Revision Act (Chapter 356 (R.L.)), and the Interpretation of Laws and General Clauses Act No. 30 of 1972. This version is up-to-date as at 31st July 2002.]

[Section 20; G.N. No. 171 of 1988]

1.

These Regulations may be cited as the Engineers Registration (General and Practical Training Requirements) Regulations.

2.

Subject to the provisions of section 9(1)(b) of the Engineers (Registration) Act[1], an applicant shall be required to submit to the Board an application form as set out under the Engineers Registration (Forms and Fees) Regulations[2]. The said application for registration shall be accompanied by documentary evidence of practical training in engineering in the form of a report of an approved programme of training showing the extent to which an applicant has satisfied the general and practical training requirements in the engineering disciplines set out in this Notice.

3.

Every report submitted by an applicant under paragraph 2 hereof shall fulfil the following conditions:

(a) The report shall be made and signed by the applicant and eight copies shall be forwarded to the Board.

(b) At the beginning of the Report, the applicant shall give a summary in a tabular form, as set out in the Schedule, showing the duration spent by the applicant on the appropriate engineering disciplines.

(c) The main body of the report shall set out in chronological order the details of training received by the applicant.

(d) The report shall mainly concern itself with showing the applicant's attainment rather than listing the jobs on which the applicant has worked:

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Provided that the Board may ask an applicant to produce proof of any particular work which the applicant may claim to have done in the course of this practical training. This proof may be in the form of original calculations, drawings of other similar matters.

(e) Except where the Board directs otherwise, the report shall be of not less than two thousand words but not exceeding three thousand words in length and shall be written in the form of a technical report.

(f) The report shall be endorsed by the engineer or engineers under whose supervision the applicant has received his training, except in cases where the Board is satisfied from evidence that it is impracticable to obtain such endorsement in which case the Board may act upon the report notwithstanding that it has not been so endorsed.

(g) The Board may direct the applicant to appear for an interview for the purpose of assessing the practical experience attained.

4.

Subject to any special consideration that may be necessitated by local conditions on any special circumstances affecting any particular engineering organisation to which a trainee belongs, the purpose of practical training of every trainee shall be to assist the trainee:

(a) to relate academic training to practical work;

(b) to develop original thinking in the solution of problems;

(c) to learn and apply proven procedures in the approach to the end solution of problems.

5.

The practical training requirements in the Engineering disciplines shall be as follows:

A – Practical training for mechanical engineers

(1) Every trainee in the mechanical engineering branch shall complete training in the types of work specified in subparagraphs (a), (b) and (c) hereunder and shall as far as circumstances permit, follow the sequence set out in these subparagraphs.

(2) The trainee shall spend at least one year on each of the three types of work, and shall seek to acquire adequate experience in the majority of the operations specified under each type, except that in relation to the operations specified under subparagraph (c), the trainee may offer as an alternative, proof of experience in a specialist field in respect of which the trainee intends to use as his future career.

(a) **Workshop practice:**

The type of work specified in this subparagraph shall consist of:

(i) Casting and foundry work, including pattern making;

(ii) bench work;

(iii) machine shop practice, that is, drilling, shaping, turning, milling, grinding, etc.;

(iv) welding both gas and electric;

(v) finish work, such as panel beating, shot-blasting, spray-painting and other similar operations.

(b) **Design (Mechanical Engineers office work):**

Every trainee shall work under the supervision of a professional Mechanical Engineer, and the type of work specified in this subparagraph shall consist of:

(i) design calculations and drawings;

(ii) layout drawings;

(iii) drawing up specifications;

(iv) fixing production time costs.

(c) **Management (Mechanical Engineers office work):**

Training in the type of work specified in this subparagraph shall be designed to enable the trainee to acquire knowledge of, and experience in judging the best man-machine-material combination in production, and the work shall include:

(i) Labour management and staff relations;

(ii) selection of production processes;

(iii) materials supply, storage and handling;

(iv) programming and estimating;

(v) maintenance:

- plant and equipment maintenance and preparation for planned maintenance schedules;
- inspection and resultant maintenance.

B – Practical training for civil engineers

1. Subject to subparagraph 2 of this paragraph, every trainee in civil engineering discipline shall complete training in the types of work specified in subparagraphs (a) and (b) hereunder.

2. In the case of research workers and other specialists, where the nature of work renders it impracticable to adhere to the requirements set out in subparagraph (a) and (b), the Board shall evaluate each individual case separately, having due regard to the practical training approved for the time being by the Board.

(a) **Design office work:**

Every trainee shall spend at least one year on design work which shall include:

(i) Tracing, checking and general office routine;

(ii) design that is calculating and drawings;

(iii) quantities, and estimating;

(iv) specifications and contract documents.

(b) **Construction site work:**

Every trainee shall spend at least one year working on site. During this period the trainee shall work with a view to acquire knowledge and experience in the following:

(i) Setting out, surveying and measuring up;

(ii) programming and processing, materials, labour and plant records, supply and orders;

(iii) costing and accounts;

(iv) staff and labour relations;

(v) laboratory work, including soil testing;

(iv) weighing and concrete batching;

[Please note: numbering as in original.]

(vii) use of explosives;

(viii) maintenance:

- trouble shooting, preventive maintenance for structures and scheduling for the same in respect of structures, plants and equipment;
- inspection and resultant maintenance.

C – Practical training for electrical engineers

Every trainee in the Electrical Engineering branch shall complete training in the type of work specified in subparagraphs (a), (b) and (c) hereunder and shall spend at least one year on each type.

The training shall be so organised as to enable the trainee to follow, as far as circumstances permit, the sequence set out in the said subparagraphs.

(a) **General workshop practice (Mechanical and electrical):**

The training in the type of work specified in this subparagraph shall be designed to enable the trainee:

(i) To acquire knowledge of properties, uses and methods of handling and limitations of materials, such as, conducting, insulating, magnetic, structural or other similar materials;

(ii) to acquire practical knowledge on development, design manufacture, utilization and maintenance of electrical equipment;

(iii) to acquire knowledge on electrical tests practice and procedures.

(b) **Directed objective training (Electrical Engineering):**

Training in the type of work specified in this subparagraph shall include working under the supervision of an experienced professional Electrical Engineer. During this period the trainee shall engage on works including:

(i) Design calculations and drawings for electrical works;

(ii) drawing up specifications;

(iii) estimating;

(iv) formulation of engineering policy;

(v) drafting of works programmes;

(iv) preparation of staff requirements and financial estimates;

[Please note: numbering as in original.]

(vii) processing of construction works;

(viii) control and operation of electrical plant and equipment;

(ix) maintenance:

- plant and equipment maintenance, preparations for planned maintenance schedules;
- inspection and resultant maintenance.

(c) **Practical experience (Electrical engineering work):**

During this period the trainee shall work on his own with the full range of duties and responsibilities of a professional electrical engineer. The trainee may receive such guidance as may be available from the engineers under whose supervision the trainee shall work.

D – Practical training for chemical and process engineers

1. Subject to paragraph 2, every trainee in the Chemical and Process Engineering discipline shall complete training in the types of works specified in subparagraphs (a) to (d) of paragraph 2 within at least two years.

2. In the case of research workers and other specialists, where the nature of work renders it impracticable to adhere to the requirements set out in subparagraphs (a) to (d) of this paragraph, the Board shall evaluate each individual's case separately having due regard to the practical training approved for the time being by the Board.

(a) **General workshop practice:**

Aspects to be covered under this subparagraph should include:

(i) Casting and foundry work, including pattern making;

(ii) bench work;

(iii) machine shop practice, that is drilling, shaping, turning, milling, grinding, etc.;

(iv) welding, both gas and electric;

(v) finish work, such as panel beating, shot-blasting, spray-painting and other similar operations.

(b) **Process plant work:**

Every trainee shall work under the supervision of a professional chemical or process engineer, during which time knowledge and experience should be acquired in most of the following areas:

(i) **Process flowsheeting and drawing:**

This should involve the preparation of detailed flowsheets and engineering drawings.

(ii) **Plant operation efficiency:**

Aspects to be covered under this subparagraph should include:

- Trouble shooting, to identify and resolve operational problems of a technical nature;
- the collection of measured data and the preparation of mass and energy balances;
- plant maintenance and preparation of planned maintenance and schedules;
- inspection and resultant maintenance.

(iii) **Quality control:**

Aspects to be covered under this subparagraph should include:

- Familiarization with relevant test procedures and standards;
- conducting of tests on raw materials, intermediates, and finished products, with appropriate laboratory practice;
- formulation, implementation, and monitoring of quality control procedures.

(iv) **Commissioning of new equipment and plant:**

Aspects to be covered under this subparagraph should include:

- Installation;
- start-up;
- operational test data;
- performance evaluation.

(c) **Plant and equipment design:**

Aspects to be covered under this subparagraph should include:

(i) Preparation of preliminary plant design and equipment specification;

(ii) simple equipment design;

(iii) preparation of cost estimates;

(iv) evaluation of tenders.

(d) **Plant management:**

Aspects to be covered under this paragraph should include:

(i) Organisation of labour work schedules, stock control, etc.;

(ii) production planning;

(iii) costing.

E – Practical training for agricultural engineers

1. The main Agricultural Engineering activities in the agricultural production system are:

- Development of land and water resources including Land Use Planning, Irrigation Scheme Design and Construction;
- mechanisation of operations contributing to crop and livestock production including design and of maintenance machinery and implements required;
- processing and storage of agricultural and livestock products;

- farm structures and services including their design for optimal crop and livestock production.

2. Every trainee in the Agricultural Engineering branch shall complete training in the types of work specified in subparagraphs (a), (b) and (c) of this paragraph.

3. The trainee shall spend at least one year on each of the three types of work and shall seek to acquire adequate experience in the majority of operations specified under each type.

4. In the case of research workers and other specialists, where the nature of work renders it impracticable to adhere to the requirements set out in subparagraphs (a), (b) and (c) below, the Board shall evaluate each individual case separately having due regard to the practical training approved for the time being by the Board.

(a) **Soil and Water Engineering:**

(i) Evaluation of Land and Water resources:

- Land Classification;
- land use planning for optimal agricultural production;
- preparation of a scheme for control of soil erosion in a given area.

(ii) Planning, design and construction of an irrigation scheme.

(iii) Maintenance and management of soil and water conservation schemes.

(b) **Machinery and mechanisation:**

The type of work specified in this subparagraph shall consist of:

(i) Mechanisation of operations such as:

- Cultivation;
- planting;
- fertiliser application;
- crop protection against weeds, pests and diseases;
- harvesting;
- transport.

(ii) selection, design and development of machinery equipment and power sources for the above operations;

(iii) machine shop and workshop practice including maintenance and repairs of machinery and construction equipment;

(iv) management of field and workshop operations with special regard to technical and financial aspects;

(v) office and labour management practice.

(c) **Process, storage and farm structures:**

The type of work specified within this subparagraph shall consist of:

(i) Selection, design and development of equipment for cleaning, sorting, grading and packing of agricultural produce;

(ii) drying techniques for grain and other crops as a preliminary stage to effective storage;

(iii) crop processing at village and industrial level e.g. milling, oil extraction and sugar production;

(iv) design and construction of farm buildings for processing and handling of crop and livestock products;

(v) application of other preservation techniques such as dehydration, refrigeration, sealed-in storage and chemical treatment.

Schedule

Tabular form for summary of practical training/ experience

Dates period	Description of activities involved	Duration (months)	Name/signature of supervising Engineer(s)