**THE UNITED REPUBLIC OF TANZANIA**

**MINISTRY OF WORKS, TRANSPORT AND COMMUNICATION**

# CURRICULUM FOR BASIC TECHNICIAN CERTIFICATE

# (NTA LEVEL 4)

# IN

# ELECTRICAL ENGINEERING

## CURRICULUM INFORMATION REPORT

## FOR
## INSTITUTE OF CONSTRUCTION TECHNOLOGY

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## EXECUTIVE SUMMARY

**ES1:** The Ministry of Works, Transport and Communication owns two training institutions namely the Morogoro based Works Training Institute (MWTI) and the Mbeya based Appropriate Technology Training Institute (ATTI). While MWTI was established in 1974 with the aim of training civil servants who were working with the Public Works Department (PWD), ATTI was established in 1993 with the objective of training professionals engaged in road construction and maintenance using the labour-based technology (LBT). Over the years, both institutions have been operating under the Roads Division of the Ministry. Although both the MWTI and ATTI have basic infrastructure and training facilities, they have various limitations that do not encourage provision of the intended services with the changing needs of the construction industry.

**ES2:** Electrical Engineering program is designed to train graduates who will serve both construction industry and related sectors. This program plays a crucial role in the socio-economic development of Tanzania. The philosophy behind the design of this programme is geared towards producing innovative, creative and flexible graduates. As such students are given opportunity to specialise in the fields of their own market interest through various modules provided. It is expected that the graduates from this programme will likely take roles involving high-level hands-on and organisational responsibility and in addition provide supportive role over a broad range of works in the electrical engineering trade.

**ES3:** The programme comprises a total of 14 modules that spread over one academic year. Each module is covered in one semester of 17 weeks. Each academic year has two semesters, i.e., a total of 34 weeks. Therefore, the whole programme has a total of 34 weeks of study for the full-time attendance mode. The modules in the programme are classified at the time being, into fundamental and core modules.

**ES4:** The programme has an Industrial Practical Training (IPT) module that is assessed as other modules. IPT is scheduled in the second semester of study and carries 10 Credits.

**ES5:** The next award of the Technician Certificate Level 5 shall be made to the students who satisfy the following criteria:

a) Have completed all modules for the award

b) Have achieved a minimum cumulative Grade Point average (GPA) equivalent to pass.

c) GPA shall be computed from grades earned by students using the NACTE guidelines.

PART I: PROGRAMME PHILOSOPHY, RATIONALE AND CURRICULUM

**STRUCTURE**

This section outlines the programme rationale, philosophy, aims and objectives of the Basic Technician Certificate (NTA Level 4) in Electrical Engineering.

## 1.1 Programme Rationale

The rationale for establishing ICoT is hinged in the Ministry's strategic plan which aims at strengthening institutions under its jurisdiction including restructuring its training institutions so as to match with its Construction Policy of 2003 whose mission was to create an enabling environment for the development of a vibrant, efficient and sustainable local industry that meets the demand for the services to support sustainable economic and social objectives.

The graduates from this programme will be flexible and able to meet challenges of the job market or industry. The programme also addresses national needs articulated through various Higher and Technical Education Policies.

## 1.2 Programme Philosophy

The philosophy behind the development of this programme is geared towards producing a technician who will be creative, innovative and knowledgeable, equipped with practical skills that will make him deliver technical services at professional level. This expertise will be in conformity with the NACTE level descriptor. The philosophy of the programme assumes that the graduate will be able to:

a) Promote economic progress through delivering expertise services in electrical engineering in the construction industry;
b) Proceed with further education at higher levels and fostering lifelong learning;
c) Create job opportunities through self-employment schemes;
d) Comply with the NACTE regulations.

It is therefore expected that graduates of this programme will be flexible and compatible to the drastic changes of technology that prevails today.

The programme is of a modular nature and will operate under semester system. The modular structure allows flexibility of the learning context to be developed to suit a related discipline. It also provides an opportunity to accommodate modules that suit a particular specialty that may be desired by the student.

### 1.3 Aims of the programme

The aims of the programme are to provide:

a) A sound and well-articulated technical education built on a strong foundation of scientific principles that will enhance the application of skills in the field of electrical engineering in the construction industry.
b) Adequate personal skills that can allow the graduate create sustainable and effective self-employment opportunity.
c) A challenging and stimulating environment, which will motivate graduates to realize their technical potential in the course of their studies, and equip them with knowledge and skills, needed to maintain up-to-date education throughout their career.

### 1.4 Objectives of the programme

The objectives of the programme are to:

a) Provide basic knowledge and practical skills necessary for installation, testing and maintenance of electrical engineering structures in the construction industry.
b) Establish a sound foundation of scientific engineering principles applied in the field of Electrical Engineering.
c) Create awareness and the need of being creative, innovative and self-reliant in tackling electrical engineering problems.
d) Develop competence in communicating with all workmates, at all levels to enhance good working environment within the field of electrical engineering.

## 2.0 ADMISSION REQUIREMENTS

Admission to this programme will be open to candidates who have a certificate of Secondary Education with a minimum four pass grade of D in Mathematics, Physics, English and any other subject excluding religious subjects. Also, a graduate of National Vocational Training

Certificate (NVA) level 3 with Two minimum passes in Form Four offered by VETA will be considered as a minimum entrance qualification to NTA 4.

### 9.3 Summary of Modules

| S/N | CODE | MODULE NAME | SEMESTER | |
|---|---|---|---|---|
| | | | I | II |
| 1 | GST 04101 | Basic Mathematics | √ | |
| 2 | GST 04102 | Basic Computer Applications | √ | |
| 3 | GST 04103 | Basic Communication Skills | √ | |
| 4 | GST 04104 | Occupational Safety Practise | √ | |
| 5 | EET 04101 | Drafting and Wiring Circuits | √ | |
| 6 | EET 04102 | DC Circuits and Batteries | √ | |
| 7 | EET 04103 | AC Circuits and Voltage Generations | √ | |
| 8 | GST 04201 | Basic Engineering Mathematics | | √ |
| 9 | GST 04202 | Basic Entrepreneurship Skills | | √ |
| 10 | EET 04201 | Electrical Measuring Instruments | | √ |
| 11 | EET 04202 | Basic Electrical Installation | | √ |
| 12 | EET 04203 | Basic Electrical Maintenance and Repair | | √ |
| 13 | EET 04204 | Solar Technology | | √ |
| 14 | EET 04205 | Industrial Practical Training | | √ |