**THE UNITED REPUBLIC OF TANZANIA**

# MINISTRY OF WORKS AND TRANSPORT

## CURRICULUM FOR BASIC TECHNICIAN CERTIFICATE

## (NTA LEVEL 6)

## IN

## MECHANICAL ENGINEERING

## CURRICULUM INFORMATION REPORT

## FOR
## INSTITUTE OF CONSTRUCTION TECHNOLOGY

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## EXECUTIVE SUMMARY

**ES1:** The Ministry of Works and Transport (MoWT) have established the Institute of Construction Technology in response to national skills demand with respect to construction services. While the construction industry is fast expanding, the supply of qualified personnel with relevant hands on skills at technicians and artisans levels is declining. The Institute of Construction Technology (ICoT) is expected to fill this gap.

**ES2:** The rationale for establishing Institute of Construction Technology (ICoT) is hinged in the Ministry's Strategic Plan 2020/2021 – 2025/2026 which aims at strengthening institutions under its jurisdiction, including restructuring its training institutions so as to match with its Construction Industry Policy of 2003, National Development Vision (2025), and other National Strategies and Policies 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 Institute of Construction Technology (ICoT) was established in 2017 and became operational on November, 2020 in response to national skills demand with respect to construction services and the declining number of personel with relevant hands on skills at technician's and artisan's levels to cope with expansion of Construction industry and Technological advancement. It is mandated to grant awards on Civil, Mechanical and Electrical Engineering on: -

- Basic Technician Certificate (NTA Level 4)
- Technician Certificate (NTA Level 5) and
- Ordinary Diploma (NTA Level 6).

ES3: **Vision, Mission and Functions of ICoT**

**Vision:**

Construction and transport sectors provided with sufficient, competent and hands-on skills using the state of the art technologies for sustainable and socio-economic needs of Tanzania.

**Mission:**

To provide a conducive training and learning environment that readily and effectively imparts competence based knowledge, skills and abilities for carrying out the construction functions necessary for rapid socio-economic progress of Tanzania.

**Functions**

The core functions of ICoT will be Training, Research and Consultancy. However, ICoT will also be conducting professional courses to various engineering cadres. Other functions will be as defined in the **Memorandum** of **Association** and **Articles of Association (MEMART)** or any other mandate establishing this institution.

The following are the Core Functions of ICoT;

**(i) Training**

ICoT will offer long term and short term courses. Long term courses will be for a period of up to 3 years which its assessment shall include (30%) theory and (70%) Practicals. Short term courses will be tailor made that will also include labotarory work and practical training.

**(ii) Research activities**

ICoT will conduct research activities mainly in the area of the construction industry. Both academic staff and students will be involved in the research activities. Outstanding research activities will form a basis for publications to the institute.

**(iii) Consultancy activities**

ICoT will undertake consultancy activities in collaboration with public and private sector. Income generated from consultancy activities will be used to enhance financial sustainability of the institute.

**ES4**: The programme comprises a total of **16** 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 Final year Project module that is assessed as other modules. Project is scheduled in the first and second semester of study.

**ES5:** The next award of the Technician Certificate Level 6 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.

### 8.3 Summary of Modules

| S/N | CODE | MODULE NAME | SEMESTER | |
|---|---|---|---|---|
| | | | I | II |
| 1 | GST 06101 | Coordinate Geometry and Differential Equations | √ | |
| 2 | GST 06102 | Correspondence and Report Writing | √ | |
| 3 | MET 06101 | Fundamentals of Computer Aided Drafting | √ | |
| 4 | MET 06102 | Machine elements and design | √ | |
| 5 | MET 06103 | Power production | √ | |
| 6 | MET 06104 | Fundamentals of refrigeration systems | √ | |
| 7 | MET 06105 | Environmental engineering | √ | |
| 8 | MET 06106 | Project Write -up | √ | |
| 9 | MET 06107 | Advance manufacturing technology | √ | |
| 10 | GST 06201 | Linear programming, statistics and probability | | √ |
| 11 | GST 06202 | Enterprise management | | √ |
| 12 | MET 06201 | Fundamentals of 3D modelling using solid works | | √ |
| 13 | MET 06202 | Fundamental of air – conditioning system | | √ |
| 14 | MET 06203 | Mechanical engineering project – production | | √ |
| 15 | MET 06204 | Industrial automation | | √ |
| 16 | MET 06206 | Final Project | | √ |