



**KILIMANJARO INTERNATIONAL INSTITUTE FOR TELECOMMUNICATIONS,  
ELECTRONICS AND COMPUTERS**

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**Course Title:** Domestic Electrical and Solar PV Installation

**Duration:** 4 months and 1 month of industrial practical training (internship)

**Dates:** 30<sup>th</sup> March to 20<sup>th</sup> August 2020

**Venue:** KIITEC, Arusha, along Nelson Mandela Road (Moshono, Suye)

**Tuition Fees:** Tanzania shillings 400,000.00 per participant

**Prerequisites:** Form Four secondary school education

**Target group:** School leavers who want to develop a career as electrical and solar PV installers

**Delivery Method:** Instructor led, group-paced, classroom-delivery learning model with structured hands-on activities/labs

**Course content:**

**(1) DOMESTIC ELECTRICAL INSTALLATION**

**REALIZATION**

- Perform the architectural electrical plan and the electrical diagram of an electrical installation
- Size the diameter of a fuse, a circuit breaker and wiring diameter depending on customers' needs
- Define the needed material for the installation and find it into a supplier catalogue
- Propose a cost estimate
- Use respecting the safety rules:
  - o Electrical measurement devices and material for the installation
  - o Hand electric tools
- Perform the connection of the electrical distribution board, switches, sockets, lamps
- Put into service the installation

## **MAINTENANCE**

- Take into consideration the clients' problems
- Look for a simple dysfunction
- Repair the installation respecting the electrical safety rules
- Repair electrical appliances and one phase motor

## **(2) SOLAR PV INSTALLATION**

### **REALIZATION**

- Perform the architectural electrical plan and the electrical diagram of a solar installation
- Size a small solar installation: photovoltaic panels, batteries, solar charge controller, inverter and wiring depending on customers' needs
- Define the needed material for the installation and find it into a supplier catalogue
- Propose a cost estimate
- Use respecting the safety rules:
- Electrical measurement devices and material for the installation
- Hand electric tools
- Perform the connection of the protection devices, photovoltaic panels, batteries, solar charge controller and inverter
- Put into service the installation

## **MAINTENANCE**

- Take into consideration the clients' problems
- Look for a simple dysfunction
- Repair the installation respecting the electrical safety rules

## **SAFETY**

- Master the electrical risks and apply the good practices

## COURSE CONTENT

DOMESTIC ELECTRICAL AND SOLAR INSTALLATION COURSE CONTENT
<b>ELECTRICAL INSTALLATION</b>
Current and electrical circuit
Generators - Receivers - Conductive and isolated frame
Voltage
Current
Ohm's law
Electrical power and energy
Electrical risks
Choice of the electrical protections - Good practices
Domestic installation presentation
Domestic electrical installation and maintenance
Drop of voltage and secondary connection
Real electrical case study for customer
Electrical motor
<b>SOLAR INSTALLATION</b>
PV System
Solar charge controller
Batteries
Protections of solar system
Sizing solar installation
Solar installation and maintenance
Real solar case study for customer