CERTIFICATE COURSE IN BASIC ELECTRICAL TRAINING (CCBET)

Department of Physics, Mary Matha Arts and Science College Mananthavady, started the **Certificate Course in Basic Electrical Training** on 2018 with an aim to understand basic electricity and to give hands – on training on electric circuits. CCBET is indented for 25 first year/second-degree students other than from Physics Department only. ***Any first/Second year degree student other than Physics main stream can apply*** Application form can be downloaded from college website (LINK). Candidates may contact department of Physics for more details.

Requirements: Any first/Second year degree student other than Physics main stream can apply

Course code: **CCBETMMCPHY/2018**

Course Duration: 3 Months (45 Hours)

Year of Establishment: 2018

Course Co-ordinator: Dr. Sijo A. K.

Course Fee: Free

Aim: Electricity has been arguably the greatest discovery of humankind, and it has become the driving force behind our daily lives. One cannot imagine being left without electricity for even a second. CCBET is indented for developing your understanding about the basics of electricity related to our daily lives. It will provide you with a solid understanding of the basic concepts of basics of electricity and will give hands – on training on circuit building activities.

LEARNING OBJECTIVES

Upon completion of this course, the participant should be able to:

- Understand the sources of electricity
- Explain production and distribution of electricity
- Identify electrical symbols and measuring instruments.
- Calculate voltage, wattage, resistance, current and power factor values.
- Interpret multi-meter readings to measure voltage, amperage, diodes, continuity, resistance, etc…
- Explain how to find resister values with a meter and color code.
- Use Ohm's law.
- Understand series circuit and parallel circuits
- Clear different modes failure: open circuits, short circuits, and ground faults.
- Understand and calculate electricity bill.

COURSE CONTENT **Duration: 30 hours**

I. **Fundamentals:** (5 hours)

Voltage, Current and Resistance, Ohms law, Resistor, Capacitor, Color-code, Faraday's law of electromagnetic induction, step-up and step-down transformer, diodes, AC-DC conversion,

II. **Electricity-Sources, production and distribution:** (10 hours)

Electricity, sources of electricity, different sources of electricity, non-conventional and conventional sources, production and distribution electricity, single phase and three phase circuits, fuse, earthing, units of electricity, electricity bill calculation.

III. **Practical (Hands–on circuit building activities):** (10 Hours)

1. Use multi-meter readings to measure voltage, current, continuity, resistance, etc…
2. Hands-on circuit (parallel and series circuits) building activities (soldering) with resistors, capacitors, diodes and LEDs.
3. Construction of rectifier- voltage step down and AC to DC conversion.
4. Clearing different modes failure: open circuits, short circuits, and ground faults.

IV. **Dissertation Project :**(5 Hours) Your dissertational project will be ideally be related to daily live electricity.

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