

Course: **Certificate in Understanding Three Phase Power & Plant Distribution**

Contact Hours: **24**

Pre-requisite: **Basic knowledge of Electricity /Electronics**

Abstract

This course will give the student of electrical engineering a basic / general knowledge of three phase power and its use in the industry. You will learn the operation of generators / alternators and how they are used in the generation of Three Phase Power. Wye and Delta power systems. How switchgears and busways are used to distribute power inside the plant. Three Phase Wye (Star) to Wye and Delta to Wye transformer connections, practical sessions will be used to develop transformer wiring configurations.

Target Audience

- Electrical Technicians
- Facility Maintenance Technicians
- Anyone considering a career in the Electrical Industry

Learning Outcomes

On completion of this course, learners will be able to:

1. Understand Power Generation and Power Distribution
2. Describe HV and LV Switchgear, Cables and Busways, Motor Control Centers
3. Calculate Phase to Neutral and Phase to Phase (Line) Voltages and Currents from Wye and Delta Systems
4. Rectification of three (3) Phase Power and inversion of DC Power
5. Power Factor Correction
6. Configure Transformer connections

Course Content

1. Understand Power Generation and Power Distribution

- Alternators / Generators Operation
- Electric Motors
- AC and DC
- Electrical terminology
- Transmission network.
- Star (Wye) and Delta
- Cables and Busways

2. Describe HV and LV Switchgear, Cables and Busways, Motor Control Centers

- Transformer
- Isolators and Switches
- LV and HV Switchgear
- Control Circuits
- OCP Protections
- Transformers Configurations and Connections

3. Calculate Phase - Neutral & Phase- Phase (Line) Voltages, Currents

- Single Phase and Three Phase Power calculations
- Power Factor Calculation
- Phase and Line voltage currents Delta
- Phase and Line voltage currents Wye

4. Rectification of three (3) Phase Power and inversion of DC Power

- AC power to DC Power
- Rectification Components
- Application

Assessment Criteria

In order to achieve Learning Outcome...	The Learner must...
<p>1. Understand Power Generation and Power Distribution</p>	<p>Understand Generator Operation Understand the difference between single phase and three phase power Understand the difference between DC and AC power Describe /Draw Electrical Transmission and Distribution network, Wye and Delta.</p>
<p>2. Describe HV and LV Switchgear, Cables and Busways, Motor Control Centers</p>	<p>Understand Three phase Transformers operation, and connections Describe use of isolators and switchgear Understand types of electrical cables. Describe operation of Electric Motors and control.</p>
<p>3 Calculate Phase - Neutral & Phase- Phase (Line) Voltages, Currents</p>	<p>Calculate Line and Phase voltage, currents in three phase systems. Perform power factor corrections.</p>
<p>4 Rectification of three (3) Phase Power and inversion of DC Power</p>	<p>Describe three phase rectifier circuit. Describe applications and use for three phase power rectification Describe dc to ac power conversion</p>