

# **COURSE OUTLINE**

## **POWER TRANSFORMERS - ACCEPTANCE, INSTALLATION AND MAINTENANCE**

### TRAINING OUTLINE

1. SAFETY AND ELECTRICAL EQUIPMENT.
  - 1.1 Electrical Hazards – Electric Shock, Electric Ark and Electric Blast Core and Shell Construction.
  - 1.2 Safety Issues relating to High Voltage Equipment.
  - 1.3 PPE.
  - 1.4 Electrical Safety Evaluation.
2. TRANSFORMER COOLING/CONSTRUCTION CLASSIFICATIONS.
  - 2.1 Transformer Elements – Coil, Core, Paper, insulating medium.
  - 2.2 Core and Shell Construction.
  - 2.3 Effect of Construction on Losses.
3. TRANSFORMER CONNECTIONS AND TAPS.
  - 3.1 Tapped Windings.
  - 3.2 Polarity.
  - 3.3 Delta and Wye Connections.
  - 3.4 Types of Liquid Filled transformers.
4. INSULATING LIQUIDS.
  - 4.1 Insulating Mineral Oil.
  - 4.2 Synthetic Insulating Liquids.
  - 4.3 Other Insulating Media.
  - 4.4 Test evaluation for insulating Liquids.
5. TRANSFORMER AUXILIARY EQUIPMENT.
  - 5.1 Bushings.
  - 5.2 Pressure Relief Devices.
  - 5.3 Pressure and Temperature Gauges.
  - 5.4 Tap Changers.
  - 5.5 Lightning Arresters.

## 6. ACCEPTANCE AND MAINTENANCE TESTING AND EVALUATION.

- 6.1 NETA.
- 6.2 Acceptance Testing and Inspection.
- 6.3 Maintenance Testing.

## 7. MONITORING AND DIAGNOSTICS.

Training Duration 3 – 4 days. Note that 30% of the training will consist of Practical Sessions on Installation, Maintenance and Testing.