



**Introduction Electrical equipment within an Electrical Power system plays an important role in the transmission and distribution of electrical power. The equipment needs to be operated and maintained in a safe manner securing continuity of supply to consu**

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## Introduction

Electrical equipment within an Electrical Power system plays an important role in the transmission and distribution of electrical power. The equipment needs to be operated and maintained in a safe manner securing continuity of supply to consumers.

**This requires the equipment to be:**

- Assessed to ensure it remains in a safe manner
- Maintained within an effective management system
- Operated by someone who is aware of the need of maintenance and fault finding techniques balanced against equipment downtime

The seminar focuses mainly on troubleshooting, maintenance and fault finding on electrical equipment and systems.

## Objectives

This course is designed to increase the awareness of the required diagnostic skills of engineers and maintenance teams on Modern Power systems. The course will revolve around maintenance, troubleshooting and fault finding techniques used in today's modern systems.

## Training Methodology

The goals of each participant are discussed to ensure their needs are fulfilled, as far as possible. Formal delivery, group work, short videos and case studies are used throughout the week. Questions are encouraged throughout, particularly at the daily wrap up sessions. This provides opportunities for participants to discuss specific issues and, if possible, find appropriate solutions. General discussions are employed to highlight particular points and to illustrate particular conditions.

## Organizational Impact

**The seminar will allow delegates to interact and gain shared experiences of others along with:**

- An understanding for the need for routine maintenance and a logical approach to fault finding techniques
- Maintenance techniques on pieces of electrical power equipment/systems
- The observation of safe working practices
- Troubleshooting techniques discussed and investigated

# Personal Impact

On successful completion of this course, delegates will be able to understand:

- The need for routine inspection, adequate maintenance of equipment and accurate record keeping
- Safe methods of maintenance management
- The effective maintenance activities for best utilisation of time and resources
- Electrical equipment and systems maintenance requirements
- The requirements for a logical process in fault finding and troubleshooting

## Who Should Attend?

- Electrical Professionals
- Electrical Engineers
- Electrical Supervisors
- Technicians
- Professionals responsible for the operation, maintenance and fault finding techniques

## SEMINAR OUTLINE

### DAY 1

#### Introduction and Safety

- Pre course assessment
- Goals and discussion
- Types of fault and factors affecting fault levels
- Maintenance of electrical equipment
- Managing maintenance
- Safety
- Balanced and unbalanced faults
- Safe working practices and isolation procedure's

### DAY 2

#### Maintenance of Electrical Equipment

- Review of Day 1
- Electrical systems and components
- Fault identification
- Circuit breakers and capacities
- Earthing introduction
- Network earthing
- Earthing systems
- Earth bonding

### DAY 3

#### Maintenance Engineering

- Review of Day 2
- Predictive Maintenance
- Preventative Maintenance

- Reactive Maintenance and Troubleshooting
- Condition monitoring
- Electrical Testing for Troubleshooting
- Transformer maintenance
- Generator maintenance

## **DAY 4**

### **Electrical Equipment: Troubleshooting and Maintenance**

- Review of Day 3
- Transformer components and trouble shooting
- Maintenance of electric motors
- Power electronics and Pulse width modulation invertors
- AC Machine components and problem solving
- Synchronous Generators
- Generator maintenance and Troubleshooting
- Variable speed drives and Harmonics

## **DAY 5**

### **Cabling**

- Review of Day 4
- Cable fault locating
- External influences
- Compatibility of equipment
- SCADA (Supervisory Control And Data Acquisition)
- Compatibility of electrical equipment
- Maintainability of electrical equipment
- Concepts of protective system protection
- Post course assessment



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