Training Program:

Electrical Maintenance For Engineers & Technicians

Introduction:

This comprehensive course covers the latest techniques relating to electrical maintenance. It will also update you with the latest information on the maintenance and installation aspects of cables, substations and switchgear, transformers, circuit breakers and motors. The candidates will become familiar with the latest techniques in safety operations of the above-mentioned electrical equipment. Also, it covers the key aspects of EPM and its benefits. The electrical drawing and schematics area discusses the various types of drawings logic diagrams, ladder diagrams, cabling and wiring diagrams etc.

Safety is a very important aspect of electrical maintenance and equipment needs to be inspected and maintained according to the relevant international regulations.

In this course the basic concepts related to safety rules and hazards are covered in detail with a separate section on inspection procedures. Special focus has been given to the maintenance and asset management of switchgear. We also look at the testing procedures for major electrical equipment. Also the course covers the new approaches of fault finding, maintenance, testing and troubleshooting of electric motors.

Who Should Attend?

Electrical engineers, instrumentation and control engineers/technicians, consulting engineers, design engineers, designers, electronic technicians, plant managers, process control engineers, system engineers, system integrators, test engineers.

Course Objectives:

By the end of this course delegates will be able to:

- Have a practical toolkit of the latest testing and maintenance requirements
- Grasp the latest updates in cable testing and technical skills in EPM programming
- Understand the operation of electrical motors, transformers, switchgears, UPS, SCADA an circuit breakers
- Practical experience in MV and HV testing, transformer troubleshooting and fire protection measures for large transformer installations
- Design tips and tricks in motor and circuit breaker cleaning, testing and installations
- How to detect faults in cables and motors
- Skill yourself up as the local guru in electrical maintenance and testing

Accreditation:

BTS attendance certificate will be issued to all attendees completing a minimum of 80% of the total course duration.

Course Outline

Electrical Preventive Maintenance (EPM) Program

- EPM and its benefits, Energy conservation
- Planning an EPM program, Personal safety
- Equipment loss, Production economics

- Main parts of an EPM program, Programmed inspections
- Recordkeeping, Training for safety and technical skills

Electrical Drawings and Schematics

- Single line and 3 line diagrams, Schematic diagrams
- Logic diagrams, Ladder diagrams
- Cabling and wiring diagrams

Electrical Safety Techniques

- Principles of safety rules, Basic theory of electrical safety
- Static electricity and protection
- Hazards due to electrical arcing and heating
- Inspection of electrical systems for safety

Substation Components, Maintenance and Asset Management Of Switchgear

- Substation types, Substation components
- Switchgear diagnostic techniques
- Substation battery conditioning and monitoring
- Circuit breaker measurement
- Maintenance and asset management of switchgear

Practical MV and HV Testing of Electrical Equipment

- Introduction, Insulation testing, High potential tests

- Oil testing, Testing of transformers
- CT testing, VT testing, Ducter testing
- Tests on other major equipment, Field tests

Transformers

- Installation of transformers
- Special aspects of installation of large power transformers
- Fire protection measures for large transformer installations
- Transformer troubleshooting

Motor Protection, Control and Maintenance

- Protection of motors, Installation and fault finding
- Motor failure analysis, Testing, Maintenance and cleaning Cables
- Cable installation, Failure of cables and fault detection
- Visual inspection, Cable testing

Power Quality

Uninterrupted Power Supply (UPS)

Safe Operation and Maintenance of Electrical Equipment

Grounding and Ground Fault Protection

Supervisory Control and Data Acquisition (SCADA)