Training Program:

Troubleshooting, Maintenance & Protection Of AC Electrical Motors & Drives

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Introduction:

It is estimated that electrical drives and other rotating equipment consume about 50% of the total electrical energy consumed in the world today. The cost of maintaining electrical motors can be a significant amount in the budget item of manufacturing and mining industries. This course gives you a thorough understanding of electrical motor's working, maintenance and failure modes and gives you the tools to maintain and troubleshoot electrical motors.

You will gain valuable insight into the selection of the protection necessary to ensure your motors are protected against fault conditions, so as to ensure reliability and long life.

You will gain a fundamental understanding of the installation, operation and troubleshooting of electric motors. Typical applications of electric motors in mining, manufacturing, materials handling and process control are covered in detail.

You will learn the basic steps in specifying, installing, wiring and commissioning motors. The concluding section of the course gives you the fundamental tools in troubleshooting motors confidently and effectively.

Target Audience:

Electrical Engineers, Electrical Technicians, Electrical Inspectors, Electrical Professionals & Supervisors, Instrumentation and Design Engineers, Maintenance Engineers, Supervisors & Technicians, Energy Management Consultants, Control Engineers & Technicians, Automation & Process Engineers, Chemical & Mechanical Engineers, Consulting Engineers, Field Technicians, Graduate Engineers, Project and

Production Managers, Project Engineers, Electronic Technicians, Plant Managers, Process Control Engineers, System Engineers, System Integrators, Testing Engineers & Technicians, Power System Engineers, Power System Technicians, Utility Engineers, Managers & Team Leaders of Engineering Departments, Safety Professionals, Plant Electricians, Facilities Engineers, Operations & Maintenance Engineers, Supervisors & Technicians, Project Engineers, Commissioning & Testing Engineers, Consulting Engineers, Electrical Technologists, Facility & Plant Managers

Training Objectives:

At the end of this course, participants will be able to:

- Understand AC motor operation and construction
- Specify, select and install motors
- Specify protection requirements for motors
- Specify speed control requirements for motors
- Install and commission motors
- Fix faults on motors
- Interpret motor performance curves
- Interface control circuits of motors with PLCs/DCSs
- Reduce downtime on electrical motors
- Improve plant safety
- Improve plant throughput
- Reduce spares usage and requirements

Accreditation:

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

Course Outline

- Fundamentals of motor technology
- AC motor theory, construction and maintenance
- Three phase AC induction motors
- Protection of AC motors
- Speed control of AC motors
- Sizing of different motor starters
- Contactor applications
- Protection of AC convertors and motors
- Control systems for AC
- Variable speed drives
- Pulse width modulation
- Field orientation
- Direct torque control
- Soft starters
- Motor failure analysis

- Motor testing methods
- Motor maintenance practices
- The selection of AC convertors for variable speed drive applications
- Installation and commissioning of AC variable speed drives
- Problems related to VSD