



## Motors & Variable Speed Drives

### Course Description

This course of Electrical Motors overviews types of motor, and covers selection criterion, motors, three-phase motors, single-phase motors including protective relays, maintenance, testing tools and methods and under-voltage protection systems. The course will include Electronic circuits for motor control, power factor correction, and harmonics, and introduction to power electronic circuits.

### Learned skills

- Be familiar with electrical motors
- Understand drive power circuits
- Be familiar with speed control methods of AC/DC motors:
- Understand electronic circuits for motor control.
- Power factor and harmonics.
- Be familiar with electric motor operation and maintenance

### Topics covered

- Introduction
- Pre Assessment

#### # Electrical Motors

- The direct current (DC) motors.
- The cage induction motors.
- The AC synchronous motors.
- Three-phase AC motors.
- Single-phase AC motors.
- The brushless servomotor.

#### # Drive Power Circuits:

- DC motor drive systems.
- AC to DC power conversion.
- AC to DC motor operation.
- AC to DC motor construction.
- Theory and operation of AC/DC motors.
- Performance of AC/DC motors.
- Starting methods of AC/DC motors.
- Conventional methods.
- Advanced methods.
- AC motor drive systems.
- AC to AC power converters with intermediate DC link.

#### # Speed Control Methods of AC/DC Motors:

- Conventional methods.
- Advanced methods.

#### # Electronic circuits for motor control:

- Introduction to power electronic circuits and drives.
- Power diodes, transistors, thyristors, and triacs.
- Converter Control:
- Single phase half wave rectifiers.
- Single phase full wave rectifiers.
- Three phase half-wave rectifiers.
- Three phase half-wave rectifiers
- Post Assessment

1.1. **Duration: 5 - Days**