Training Program:

Electrical Installations & Maintenance

Introduction:

The electrical designer, installer and maintenance team are all expected to provide an installation that is safe, cost effective and reliable throughout its lifetime. The course begins with the fundamental principles that always apply to ensure safety, the course then progresses through basic design procedures, inspection, testing and maintenance requirements, concluding with a review of power quality problems that affect the reliability of an installation where high technology interfaces with a supply. The course will provide an understanding of:

- The initial assessment of an installation prior to the design
- Selection of protective devices
- Cable sizing and installation
- Inspection and testing procedures
- The maintenance requirements

Who Should Attend?

Mechanical and Electrical engineers, Mechanical and Electrical technicians, Electricians, Maintenance personnel with responsibility for an electrical installation

Course Objectives:

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

- Know the safety factors required by national and international standards

- Know the functional considerations that a designer has to take into account
- Understand how new technology can impact on the design particularly power quality
- Know safety requirements during installation, inspection and testing
- identify and select inspection and testing techniques that affect the maintenance requirements
- Understand how to improve productivity by improving the reliability of an installation
- Know the basis for safety and functional design
- Understand how to assess the characteristics needed to commence a design process
- Know the earthling and bonding requirements of an installation for safety and function
- Understand how new technology impacts on new and existing electrical installations
- Identify and select inspection and testing techniques that affect the maintenance routine of an installation
- Understand how to improve productivity by improving power quality

Course Outline

Preliminary Design Requirements

- Building services
- Purpose of an installation
- Cables
- External influences
- Transformers

- Compatibility
- Protective devices
- Maintainability

Design Characteristics

- Electrical safety
- Cable installation
- IEC 60364
- Terminations
- Wiring regulations
- Inspection and testing
- Cable sizing
- Documentation

Designing an Installation

- Single phase design
- Power quality
- Three phase design
- Cable requirements
- Protective device selection
- Installation method
- Earthing and bonding
- Source of supply

Commissioning and Testing

- The need to maintain
- Test results
- What is maintenance
- Documentation
- Introduction to commissioning
- Harmonics
- Inspection
- Earth leakage

Periodic Maintenance

- Maintenance Planning
- Periodic inspection
- Equipment reliability
- Complex testing
- Categories of system
- Harmonic analysis
- Safety critical
- Records