Practical Grounding, Bonding,Shielding and Surge Protection Training

Description

Course Description

Few topics generate as much controversy and argument as that of grounding and the associated topics of surge protection, shielding and lightning Protection of electrical and electronic systems. Poor grounding practice can be the cause of continual and intermittent difficult-to-diagnose problems in a facility. This course looks at these issues from a fresh yet practical perspective and enables you to reduce expensive downtime on your plant and equipment to a minimum by correct application of these principles.

This course is designed to demystify the subject of grounding and presents the subject in a clear, straightforward manner. Installation, testing and inspection procedures for industrial and commercial power systems will be examined in detail. Essentially this workshop is broken down into grounding, shielding and surge protection for both power and electronics systems. Grounding and surge protection for telecommunications and IT systems are examined in detail. Finally, the impact of lightning is examined and simple techniques for minimizing its impact are described.

Course Objective

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

- Apply the various methods of grounding electrical systems
- Detail the applicable national Standards
- Describe the purposes of grounding and bonding
- List the types of systems that cannot be grounded
- Describe what systems can be operated ungrounded
- Correctly shield sensitive communications cables from noise and interference
- Apply practical knowledge of surge and transient protection
- Troubleshoot and fix grounding and surge problems
- Design, install and test an effective grounding system for electronic equipment
- Protect sensitive equipment from lightning

- Apply good grounding practice to your next installation
- Minimise electrical surge problems due to lightning and surges
- Protect sensitive electronic equipment from surges and lightning
- Correctly shield sensitive systems from noise and interference

Course Outline

- Introduction and basics to different grounding systems & their importance's.
- Grounding of power supply system neutral.
- Equipment grounding.
- Lightning, its effects on electrical systems and protection against lightning.
- Surge arresters.
- Static electricity and protection
- Ground electrode system.
- Step & Touch voltages.
- Steps to ensure effective substation grounding
- Earth fault protections.
- Tests on RCD's.
- Tests & Maintenance of Earthing systems.
- UPS systems and their grounding practices.
- Related standards IEC/BS/IEEE.
- Course Evaluation & Summary