



Training Program:

Grounding and Noise Considerations for Control Equipment and Computers

DESCRIPTION:

This course provides an understanding of grounding, from both an electrical systems relationship and from an instrument loops relationship. The purpose of grounding and electrical systems, grounding for safety, signal noise, signal wiring systems, and methods used to reduce noise.

WHO SHOULD ATTEND?

This Intensive five-day instructional program covering the educational needs of Instrumentation and Control Engineers & Technicians, Electrical Engineers & technicians, Projects Engineers & Technicians, computers and IT Engineers and Technical Supervisory personnel involved in Grounding and Noise Considerations for Control Equipment and Computers. No specific prerequisite training or experience required for registration.

METHODOLOGY

This interactive Training will be highly interactive, with opportunities to advance your opinions and ideas and will include;

- Lectures
- Workshop & Work Presentation
- Case Studies and Practical Exercise
- Videos and General Discussions

CERTIFICATE

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

COURSE OBJECTIVES:

Participant will be able to:

- Learn the relationship between earth ground to electricity and electrical shock
- Understand why some electrical systems are connected to earth ground
- Use the National Electric Code (NEC) as standard for grounding instrument systems
- Understand how people become part of an electrical circuit and how to avoid it
- Understand what a ground loop is
- Compare noise and interference and how they are transmitted
- Identify instrument signal wiring and conductors
- Use methods to reduce instrument noise
- Understand the effects of harmonics on power systems, control systems, and computers

COURSE OUTLINE

1- Grounding:

- NEC Definitions,
- Earth Ground,
- Electrical Shock,
- Wye- and Delta-Connected Transformers,
- Grounding Electrical Systems,
- Methods of Grounding Electrical Systems,
- Isolated Grounding,
- Ground Loops in Instrumentation

2- Noise:

- What is Noise?
- What is Interference?
- Transmission of Noise and Interference,
- Signal Wiring and Conductors,
- Shielding and Grounding in Instrumentation,
- Methods of Shielding and Grounding in Instrumentation

3- Powering Sensitive Electronic Equipment:

- Power disturbance waveforms,
- Surge suppression devices and characteristics,
- Power conditioners,
- UPS,
- Power system harmonics and their effect