

Training Title

MAINTAIN INSTRUMENTED PROTECTION SYSTEMS (IPS)

Training Duration

5 days

Training Venue and Dates

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| Ref. NO. ME100 | Maintain Instrumented Protection Systems (IPS) | 5 | 20 – 24 Oct. 2025 | \$6,500 | Barcelona, Spain |
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In any of the 4 or 5-star hotels. The exact venue will be informed once finalized.

Training Fees

- **\$6,500 per participant for Public Training includes Materials/Handouts, tea/coffee breaks, refreshments & Lunch.**

Training Certificate

Define Management Consultancy & Training Certificate of course completion will be issued to all attendees.

TRAINING DESCRIPTION

This course provides essential knowledge and hands-on skills to inspect, test, and maintain instrumented protection systems (IPS) used in safety-critical industrial environments. Participants will learn how to ensure these systems operate reliably, comply with standards like IEC 61511, and maintain required Safety Integrity Levels (SIL). Ideal for technicians and engineers working with automated safety systems in industries such as oil & gas, mining, and manufacturing.

TRAINING OBJECTIVES

Participants will be able to:

This course provides the knowledge and practical skills required to inspect, test, and maintain instrumented protection systems (IPS) in accordance with industry standards and regulatory requirements. It emphasizes safety integrity, compliance, and reliability of systems designed to prevent hazardous events.

WHO SHOULD ATTEND?

- Electricians, instrumentation technicians, or engineers working with safety-critical systems

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- Maintenance personnel in oil & gas, mining, energy, manufacturing, or processing industries

TRAINING METHODOLOGY:

A highly interactive combination of lectures and discussion sessions will be managed to maximize the amount and quality of information and knowledge transfer. The sessions will start by raising the most relevant questions and motivate everybody to find the right answers. You will also be encouraged to raise your own questions and to share in the development of the right answers using your own analysis and experiences. Tests of multiple-choice type will be made available on a daily basis to examine the effectiveness of delivering the course. Very useful Course Materials will be given.

- 30% Lectures
- 30% Workshops and work presentation
- 20% Group Work & Practical Exercises
- 20% Videos & General Discussion

DAILY OUTLINE

Day 1: Introduction to IPS and Functional Safety

- Overview of Instrumented Protection Systems (IPS)
- Role of IPS in industrial safety
- Introduction to Functional Safety concepts
- Standards overview: IEC 61508 & IEC 61511
- Safety Lifecycle and its phases

Day 2: IPS Components and Safety Integrity Levels (SIL)

- Key IPS components: sensors, logic solvers, final elements
- Types of instrumented protective functions
- Understanding and applying SIL requirements
- SIL determination and allocation
- Failure modes and reliability concepts

Day 3: Inspection, Testing, and Maintenance of IPS

- Routine inspection procedures for IPS

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- Preventive and predictive maintenance techniques
- Proof testing principles and execution
- Managing bypasses and overrides safely
- Use of diagnostic tools and software

Day 4: Troubleshooting and System Verification

- Fault-finding techniques and case studies
- System diagnostics and loop checks
- Verifying IPS performance against safety requirements
- Common issues in field devices and controllers
- Functional testing of logic solvers and safety relays

Day 5: Documentation, Compliance & Assessment

- Recording maintenance and testing activities
- Compliance with regulatory and site-specific requirements
- Safety instrumented system documentation practices
- Course review and Q&A
- Practical and theory assessment

NOTE:

Pre & Post Tests will be conducted.

Case Studies, Group Exercises, Group Discussions, Last Day Review & Assessments will be carried out.

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