

TRAINING TITLE

DEVELOPING AND APPLYING STANDARDS FOR INSTRUMENTATION

Training Duration

5 days

Training Venue and Dates

Ref. No. IC089	Developing and Applying Standards for Instrumentation	5	12-16 May 2025	\$5,500	DUBAI, UAE
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In any of the 4 or 5-star hotels. The exact venue will be informed later.

Training Fees

- \$5,500 per participant for Public Training includes Materials/Handouts, tea/coffee breaks, refreshments & Lunch

Training Certificate

Define Management Consultants Certificate of course completion will be issued to all attendees.

TRAINING DESCRIPTION

The Developing and Applying Standards for Instrumentation course is designed to provide professionals in the fields of instrumentation, control systems, and engineering with the essential knowledge and skills required to develop, implement, and apply industry standards to instrumentation systems. Instrumentation standards play a critical role in ensuring that systems and devices meet the required performance, safety, and quality standards while also maintaining consistency across various industries.

TRAINING OBJECTIVES

By end of course participants will be able to understand

- Understand the Importance of Instrumentation Standards: Comprehend the role of standards in ensuring safety, quality, and performance in instrumentation and control systems.
- Identify Key Instrumentation Standards and Regulations: Learn about the key industry standards (e.g., ISA, IEC, ANSI, API) that govern instrumentation and how to apply them in real-world applications.
- Develop Instrumentation Standards: Gain practical skills in creating and developing instrumentation standards tailored to specific projects, processes, or industries.

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- **Apply Standards Effectively:** Learn how to implement and apply standards in instrumentation systems, ensuring they are adhered to during installation, commissioning, and operation.
- **Audit and Review Compliance:** Understand the auditing processes for ensuring compliance with established standards and identifying gaps or deficiencies.
- **Integrate Standards with Industry Best Practices:** Integrate current best practices and technologies into instrumentation standards to enhance system performance, safety, and reliability.
- **Understand Global Instrumentation Standards:** Explore global trends in instrumentation standards, including the harmonization of international standards.

WHO SHOULD ATTEND?

- Instrumentation engineers
- Control systems engineers
- Electrical engineers
- Project engineers and managers
- Quality assurance professionals
- Safety officers
- Regulatory compliance specialists

COURSE PROGRAM

Day 1: Introduction to Instrumentation Standards

- **What Are Instrumentation Standards?**
 - Definition and significance of standards in instrumentation
 - Global, national, and industry-specific standards (ISA, IEC, ANSI, API, NFPA)
 - The role of standards in ensuring safety, quality, and reliability in instrumentation systems
- **Key Standards and Regulatory Bodies**
 - International Society of Automation (ISA) standards
 - International Electrotechnical Commission (IEC) standards
 - American National Standards Institute (ANSI) standards
 - Regulatory bodies and their role in establishing standards (e.g., OSHA, ATEX, UL)
 - Comparison of global instrumentation standards: US vs. European vs. international standards
- **The Lifecycle of Instrumentation Standards**
 - From concept to application: how standards evolve and are applied

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- Standard development processes and committees
- Role of industry professionals in contributing to standards development

Day 2: Developing Instrumentation Standards

- **Instrumentation System Design Considerations**
 - Key elements in the design of instrumentation systems: accuracy, reliability, calibration, safety, and integration
 - Defining design specifications and requirements based on industry standards
 - Selecting the appropriate instruments based on application needs and standards
- **Steps to Developing Instrumentation Standards**
 - Identifying the purpose and scope of the standard
 - Understanding the application environment: industry, process, and regulatory requirements
 - Establishing measurement and performance criteria
 - Writing and structuring clear, enforceable standards
- **Key Standards Components**
 - Terminology and definitions
 - Instrumentation specifications: materials, sizes, ranges, and tolerances
 - Installation and commissioning procedures
 - Documentation, testing, and calibration requirements

Day 3: Applying Instrumentation Standards

- **Implementing Standards in Instrumentation Systems**
 - Overview of instrumentation installation standards (e.g., wiring, control panels, field devices)
 - Ensuring compliance during procurement, installation, and commissioning
 - Risk assessment and hazard analysis: integrating safety standards in instrumentation
 - Integrating control systems and automation standards in instrumentation systems
- **Standards for Calibration and Maintenance**
 - Calibration standards and procedures: frequency, methods, and certification
 - Routine maintenance and testing to ensure long-term compliance and performance
 - Troubleshooting issues with instrumentation devices and systems

Day 4: Auditing and Reviewing Instrumentation Standards Compliance

- **Auditing Instrumentation Systems**
 - Importance of audits to ensure compliance with standards

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- Developing an auditing process: tools, checklists, and techniques for auditing instrumentation systems
- How to identify gaps or non-compliance in existing systems
- Using audit results to improve future instrumentation designs and implementations
- **Compliance and Certification**
 - Overview of certification programs for instrumentation systems (e.g., CE marking, UL certification)
 - Ensuring compliance with both internal and external standards
 - Auditing as a continuous improvement tool
- **Corrective and Preventive Actions**
 - Strategies for addressing non-compliance and implementing corrective actions
 - Documenting and reporting compliance issues
 - Integrating preventive measures to avoid recurring problems

Day 5: Integrating Best Practices and Global Instrumentation Trends

- **Global Harmonization of Instrumentation Standards**
 - Exploring trends in the global harmonization of instrumentation standards
 - How international standards are evolving to accommodate new technologies (e.g., digital instrumentation, IoT, Industry 4.0)
 - Bridging gaps between national standards and global practices
- **Best Practices in Instrumentation Standardization**
 - Key principles for successful standardization in instrumentation systems
 - Collaboration with other engineering disciplines for integrated standard development
 - Risk management and sustainability in instrumentation system standards
- **Future Trends and Challenges**
 - The impact of emerging technologies (e.g., automation, smart sensors, wireless communication) on instrumentation standards
 - How to keep up with evolving standards and industry changes
 - The role of instrumentation engineers in shaping future standards and regulations

NOTE:

Pre-& Post Tests will be conducted.

Case Studies, Group Exercises, Group Discussions, Last Day reviews, and assessments will be carried out.

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