INSTRUMENT CALIBRATION INSTALLATION AND COMMISSIONING

COURSE OVERVIEW

This course is designed to provide participants with practical knowledge and skills in the installation, calibration, and commissioning of industrial instrumentation systems. It covers essential techniques and standards related to pressure, temperature, level, flow, and analytical instruments. Through a mix of classroom instruction and hands-on exercises, participants will learn how to ensure accurate measurement, proper instrument functioning, and successful integration into control systems. The course emphasizes safety, precision, documentation, and adherence to international standards such as ISA and IEC.

DATES, VENUES AND FEES

19 – 23 October 2025 - Dubai

(5 Days)

Fees US$ 4500

Note: Fee is per participant + 5% VAT (if applicable).
Groups from the same company can enjoy a **discounted** price.

WHO SHOULD ATTEND?

This course is appropriate for a wide range of professionals but not limited to:

- Instrumentation and control technicians
- Electrical and instrumentation (E&I) engineers
- Maintenance and calibration personnel
- Commissioning engineers and field service staff
- Technicians and supervisors in oil & gas, power, water, manufacturing, and utilities
- Anyone involved in plant start-up, instrumentation QA/QC, or asset reliability

CONTACT US NOW

+971 (4) 4539841 – 42 – 43
WhatsApp: +971 52 398 7781

Millennium Solutions Training Center FZ-LLC
Block 2B, 1st Floor, Office 134, Knowledge Park, Dubai, UAE
Email: info@mstcme.com
Website: www.mstcme.com

ACCREDITATION

This training course is certified by CPD.

The CPD Certification Service is the leading independent CPD accreditation institution operating across industry sectors to complement the Continuing Professional Development policies of professional institutes and academic bodies. The CPD Certification Service provides support, advice, and recognised independent CPD accreditation compatible with global CPD principles. CPD is the term used to describe the learning activities professionals engage in to develop and enhance their abilities and keep skills and knowledge up to date. CPD Units are only awarded to programmes after each programme is scrutinised to ensure integrity and quality according to CPD standards and benchmarks.

COURSE CERTIFICATE

MSTC certificate will be issued to all attendees completing a minimum of 80% of the total tuition hours of the course.

CPD internationally recognized certificate will be issued for all participants who will meet the course requirements.
CPD certificates will be issued within a month of the successful completion of the course.

TRAINING METHODOLOGY

- Expert-led sessions with dynamic visual aids
- Comprehensive course manual to support practical application and reinforcement
- Interactive discussions addressing participants' real-world projects and challenges
- Insightful case studies and proven best practices to enhance learning

LEARNING OBJECTIVES

By the end of this course, participants should be able to:

- Understand the principles and types of industrial instrumentation
- Select and install field instruments according to specifications and site conditions
- Perform accurate calibration using industry-approved tools and methods
- Document calibration activities and adhere to international calibration standards
- Plan and execute commissioning of instrumentation and control systems
- Troubleshoot issues during installation and commissioning phases
- Ensure compliance with safety, quality, and operational procedures

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COURSE OUTLINE

DAY 1

Fundamentals of Instrumentation and Measurement

- Pre test
- Introduction to instrumentation systems and control loops
- Overview of measurement principles (pressure, flow, temperature, level)
- Sensor types and transducer technologies
- 4–20 mA signals, HART, and digital protocols (Foundation Fieldbus, Profibus)
- Instrument tags, P&IDs, and datasheets
- Safety considerations and standards (ISA, IEC, API)

DAY 2

Instrument Installation Practices

- Site preparation and installation guidelines
- Wiring, shielding, and grounding of instruments
- Mounting of pressure transmitters, RTDs, thermocouples, flowmeters
- Cable trays, junction boxes, and enclosures
- Field calibration ports and accessibility
- Case study

DAY 3

Instrument Calibration Techniques

- Purpose and importance of calibration
- Calibration tools: deadweight tester, dry block calibrators, multifunction calibrators
- Calibration methods: zero/span adjustment, loop checking, as-found/as-left records
- Tolerance limits, accuracy, repeatability, and uncertainty
- Group Exercise
- Documentation and traceability: ISO/IEC 17025 compliance

DAY 4

Commissioning of Instrumentation Systems

- Pre-commissioning and commissioning checklists
- Loop checking, functional testing, and I/O verification
- Interface with control systems (PLC/DCS/SCADA integration)
- Simulation and validation of signal paths
- Final acceptance testing (FAT/SAT) procedures
- Troubleshooting instrumentation and signal issues during startup

DAY 5

Quality Assurance, Troubleshooting and Case Studies

- Root cause analysis of calibration and installation errors
- Preventive maintenance planning and best practices
- Review of typical installation and calibration faults
- Real-world case studies and lessons learned
- Group project
- Course wrap-up and Q&A
- Post test

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