

Course No. 1163

Industrial Automation Training Course

INSTRUMENTATION & CONTROL
INDUSTRIAL ENGINEERING, MAINTENANCE & OPERATIONS

DURATION

5 Days

DELIVERY

Classroom



Course Overview

The Industrial Automation Training Course is a comprehensive professional development program designed to equip engineers, technicians, supervisors, and industrial professionals with the knowledge and practical skills required to design, implement, operate, maintain, and optimize industrial automation systems. As industries continue to embrace digital transformation, smart manufacturing, and advanced production technologies, industrial automation has become a strategic enabler for improving operational efficiency, increasing productivity, enhancing safety, reducing operating costs, and achieving sustainable business performance.

This course provides participants with a comprehensive understanding of industrial automation technologies, including automation architecture, sensors, actuators, industrial instrumentation, programmable controllers, supervisory monitoring systems, distributed control systems, industrial communication networks, and intelligent control strategies. Participants will learn how automation systems integrate mechanical, electrical, instrumentation, and information technologies to deliver reliable, efficient, and data-driven industrial operations.

Organizations operating in oil and gas, petrochemicals, manufacturing, power generation, mining, water and wastewater treatment, pharmaceuticals, food processing, transportation, utilities, and infrastructure depend on industrial automation systems to improve process stability, optimize production, enhance equipment reliability, and support continuous operational improvement. This Industrial Automation Training Course enables participants to develop practical competencies that contribute directly to organizational performance, operational excellence, and successful digital transformation initiatives.

Through a combination of engineering principles, practical workshops, industrial case studies, and real-world applications, this course prepares participants to evaluate, implement, troubleshoot, maintain, and improve industrial automation systems. By the end of the program, participants will possess the technical confidence and professional expertise required to support automation projects, improve production processes, strengthen asset performance, and drive continuous operational improvement across modern industrial facilities.

Objectives

- Analyze industrial automation principles and their role in improving operational performance throughout the course.
- Develop automation solutions that support efficient, reliable, and intelligent industrial operations.
- Evaluate industrial automation architectures, components, and control technologies.
- Apply automation engineering principles to process control and manufacturing systems.
- Design integrated automation solutions using modern industrial technologies.
- Improve troubleshooting capabilities for identifying and resolving automation system failures.
- Strengthen maintenance strategies that enhance automation system reliability and availability.
- Implement industrial communication and system integration techniques for automated facilities.
- Assess automation system performance using operational data and performance indicators.
- Align industrial automation initiatives with organizational objectives related to productivity, safety, quality, sustainability, and operational excellence.

Who Should Attend

This Industrial Automation Training Course is designed for automation engineers, control engineers, instrumentation engineers, electrical engineers, mechanical engineers, process engineers, production engineers, maintenance engineers, reliability engineers, systems engineers, commissioning engineers, project engineers, and industrial technology specialists responsible for designing, operating, maintaining, or improving automated industrial systems. It is equally valuable for automation technicians, instrumentation technicians, maintenance technicians, electrical technicians, production supervisors, and technical personnel seeking to strengthen their industrial automation expertise.

The course is also suitable for engineering managers, maintenance managers, operations managers, production managers, plant managers, reliability managers, technical supervisors, automation specialists, digital transformation leaders, industrial consultants, project managers, and decision makers responsible for improving production efficiency, equipment performance, operational reliability, and industrial innovation.

Professionals working within government entities, ministries, public sector organizations, oil and gas companies, petrochemical facilities, manufacturing industries, power generation plants, mining

operations, water treatment facilities, pharmaceutical companies, food processing organizations, transportation infrastructure, engineering contractors, and large industrial enterprises will gain practical knowledge that supports intelligent automation, process optimization, operational resilience, and long-term organizational success.

Learning Outcomes

- By the end of this Industrial Automation Training Course, participants will be able to:
- Explain the principles, architecture, and components of industrial automation systems.
- Design automation solutions that improve manufacturing and process operations.
- Integrate sensors, actuators, controllers, and industrial instrumentation into automated systems.
- Configure automation systems for efficient process monitoring and operational control.
- Diagnose automation system faults using structured troubleshooting methodologies.
- Apply preventive and predictive maintenance practices to improve automation reliability.
- Evaluate automation performance using operational data and engineering analysis.
- Implement industrial communication technologies that support integrated automation environments.
- Apply industry best practices for automation safety, reliability, and lifecycle management.
- Develop practical automation improvement plans that enhance operational efficiency, productivity, and asset performance.

Course Outline

DAY 01

Fundamentals of Industrial Automation

- Introduction to industrial automation and smart manufacturing
- Automation architecture and industrial control systems
- Sensors, actuators, industrial instrumentation, and field devices
- Process control fundamentals and automation principles

PRACTICAL APPLICATION

Exploring industrial automation architecture and system components

DAY 02

Automation Technologies and System Integration

- Programmable controllers and industrial control platforms
- Supervisory monitoring and distributed control technologies
- Industrial communication networks and system integration
- Human-machine interface concepts and operational visualization

PRACTICAL APPLICATION

Integrating automation components into an industrial control system

DAY 03

Automation Programming and Process Optimization

- Automation logic development and control strategies
- Process monitoring, data acquisition, and operational analytics
- Performance optimization and process improvement techniques
- Automation diagnostics and system troubleshooting

PRACTICAL APPLICATION

Developing and optimizing industrial automation solutions

DAY 04

Maintenance, Reliability, and Industrial Cybersecurity

- Preventive and predictive maintenance for automation systems
- Reliability improvement and lifecycle management
- Industrial cybersecurity fundamentals and operational risk management
- Documentation, backup, recovery, and change management

PRACTICAL APPLICATION

Diagnosing automation failures and implementing corrective maintenance strategies

DAY 05

Operational Excellence and Future Automation Technologies

- Advanced automation trends and digital transformation strategies
- Intelligent manufacturing and industrial performance improvement
- Best practices for automation project implementation and continuous improvement
- Measuring automation effectiveness through operational performance indicators

FINAL WORKSHOP

Design, integrate, evaluate, troubleshoot, and optimize a complete industrial automation solution, including system architecture, control strategy, communication integration, maintenance planning, performance improvement, and a practical implementation roadmap for achieving operational excellence.

Register or Request More Information

Course page: <https://quest-training.com/courses/industrial-automation-training-course>

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