

Course Overview:

This course provides a comprehensive foundation in control systems and automation, essential for maintaining operational efficiency and technical reliability in industrial settings. Designed for professionals involved in system design, maintenance, or automation processes, it bridges theoretical principles with real-world applications. The course also addresses current technological advancements, ensuring participants stay updated with modern automation strategies and integration challenges.

Course Objective:

- Understand and apply the fundamental principles of control theory and automation.
- Design and implement efficient control systems using modern tools and technologies.
- Analyze and troubleshoot control system failures using diagnostic methodologies.
- Integrate automation systems with emerging technologies such as IoT and AI.
- Monitor and adapt to evolving trends in control systems and industrial automation.

Course Outline:**Module 1: Fundamentals of Control Theory**

- Basic concepts and terminology
- Feedback vs. feedforward control
- Control modes and system stability

Module 2: Automation Technologies

- Sensor and actuator functions
- PLCs and their role in automation
- Industrial communication systems

Module 3: System Design and Implementation

- System architecture planning
- Developing control algorithms
- Designing user interfaces

Module 4: Troubleshooting Control Systems

- Identifying common failures
- Using diagnostic tools
- Implementing preventive maintenance

Module 5: Integration With Other Technologies

- Applying IoT in control systems
- Incorporating AI solutions
- Managing cyber-physical systems

Module 6: Current Trends in Automation

- Smart manufacturing innovations
- Robotics applications
- Energy-efficient automation systems

Module 7: Advanced Control Strategies

- Predictive control models
- Adaptive systems and learning algorithms
- Handling nonlinear control issues

Module 8: Project Management in Control Systems**Training Language:**

English/Arabic

Training Methodology:

The course combines various teaching methods, including instructor-led presentations, group discussions, case study analyses, and assessments through quizzes and a final exam to engage participants and ensure they understand and retain the material.

Venue | Date | Fees

Riyadh | 07-09-2025 | 17,250 SAR

- Planning and scheduling tasks
- Managing technical resources
- Ensuring quality and testing processes

Who Should Attend:

- Engineers and technicians in control systems
- Automation and process control professionals
- Technical staff in system design and maintenance
- Engineering students and researchers in automation fields