ABB Controllers Training Course

Professional Development Training Course Outline

Category	Engineering	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

ABB Controllers Training Course offers a comprehensive and **practical** introduction to **ABB controllers**, equipping participants with the essential skills to program, configure, and troubleshoot **industrial automation** systems. In an era of increasing **digitalization** and **smart factories**, proficiency in **programmable logic controllers (PLCs)** is crucial for maintaining **operational efficiency**, ensuring **system reliability**, and driving **process optimization**. This training focuses on the core principles of **control systems**, providing a deep dive into **ABB's AC 800M** and **System 800xA** platforms, and covering everything from foundational hardware configuration to **advanced programming techniques** and **cybersecurity** best practices.

By participating, learners will gain a competitive edge in the rapidly evolving **automation industry**. The curriculum is meticulously designed to bridge the gap between theoretical knowledge and real-world application, featuring a blend of **hands-on labs** and **case studies**. You'll learn to handle **real-time data**, implement **predictive maintenance** strategies, and ensure the **safety and compliance** of your automated systems. This training is your gateway to becoming a certified expert in ABB's cutting-edge control technology, ready to tackle the challenges of modern industrial environments.

Programme Curriculum

ABB Controllers Training Course

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Course Objectives

- Develop proficiency in IEC 61131-3 languages, including Structured Text (ST), Function Block Diagram (FBD), and Ladder Logic (LD).
- Learn to set up and configure ABB's AC 800M controllers and associated I/O modules for various industrial applications.
- Gain expertise in designing and integrating Human-Machine Interface (HMI) and Supervisory Control and Data Acquisition (SCADA) systems using System 800xA.
- Acquire practical troubleshooting skills to quickly identify and resolve faults in control logic, hardware, and communication networks.
- Comprehend the architecture of ABB Ability System 800xA, its components, and the integration of diverse systems.
- Learn and apply cybersecurity protocols and best practices to protect industrial control systems from threats.
- Implement PID loops and other advanced control strategies to enhance process stability and efficiency.
- Configure data logging, historical trending, and reporting for performance analysis and predictive maintenance.
- Understand how to connect and communicate with field devices using protocols like Modbus, PROFIBUS, and OPC.
- Perform routine maintenance, backup and restore procedures, and software updates to ensure system longevity.
- Learn to create, manage, and structure complex automation projects from concept to commissioning.
- Use real-world case studies to solve complex industrial problems and design effective control solutions.
- Configure safety systems and protocols to meet industry standards and minimize operational risks.

Organizational Benefits

- Empowered employees lead to optimized processes, reduced downtime, and enhanced operational efficiency.
- Skilled personnel can perform in-house maintenance and troubleshooting, minimizing the need for expensive third-party support and reducing unplanned outages.
- Proper training ensures adherence to industry safety standards and regulations, reducing the risk of accidents and non-compliance penalties.
- A proactive approach to maintenance, enabled by system knowledge, extends the lifespan of equipment and maximizes asset availability.

- An upskilled workforce is better equipped to innovate and adapt to new technologies, keeping the organization at the forefront of the industrial automation market.
- Teams with advanced skills can efficiently design, configure, and commission new automation projects, accelerating time-to-market.

Target Audience

- Automation Engineers and Control Systems Engineers
- Electrical Engineers and Instrumentation Engineers
- Maintenance Technicians and Maintenance Supervisors
- System Integrators and Solution Architects
- Plant Operators and Process Technicians
- Aspiring Professionals in the industrial automation field
- Project Managers overseeing automation projects
- IT Personnel involved with industrial control networks

Course Modules

Module 1: Foundations of ABB Control Systems

- Introduction to ABB Controllers.
- Hardware and Architecture.
- Control Builder Software.
- I/O Configuration
- **Case Study:** A simple bottling plant automation project, from hardware selection to initial setup.

Module 2: Core Programming with IEC 61131-3

- Ladder Logic (LD).
- Function Block Diagram (FBD).
- Structured Text (ST).
- Sequential Function Charts (SFC).
- **Case Study:** An automated pump control system with multi-step sequences for different operational modes.

Module 3: HMI and SCADA Integration

- System 800xA Overview.
- Process Graphics Development.
- Alarm and Event Management.
- Trending and Historical Data.
- **Case Study:** Designing a complete SCADA interface for a wastewater treatment facility, with real-time monitoring and alarm management.

Module 4: Industrial Communication & Networks

- Communication Protocols.
- Network Configuration.
- Redundancy and Reliability.
- Integration with Third-Party Devices.
- **Case Study:** Integrating an ABB controller with a third-party flow meter using Modbus to a centralized SCADA system.

Module 5: Advanced Control & Optimization

- PID Control.
- Control Tuning.
- Advanced Function Blocks.
- Batch Control.
- **Case Study:** Optimizing temperature and pressure control in a chemical reactor using advanced PID tuning.

Module 6: Diagnostics and Troubleshooting

- System Diagnostics.
- Hardware Troubleshooting.
- Software Debugging.
- Network Fault Finding.
- **Case Study:** Analyzing a sudden plant shutdown incident to identify the root cause, from PLC diagnostics to network logs.

Module 7: System Maintenance and Lifecycle Management

- Backup and Restore.
- Software and Firmware Updates.
- Lifecycle Management
- User Management and Security.
- **Case Study:** Executing a scheduled maintenance task for a critical system, including backup, software update, and system verification.

Module 8: Cybersecurity and IIoT Integration

- Industrial Cybersecurity Principles.
- Secure System Configuration.
- Threat Detection & Incident Response.
- Introduction to IIoT.
- **Case Study:** Implementing a cybersecurity hardening plan for a manufacturing plant to protect against a simulated cyber attack.

Training Methodology

Our training methodology combines a balanced approach of theoretical instruction and practical application.

- Instructor-Led Sessions.
- Hands-on Labs.
- Real-World Case Studies.
- Group Activities.
- Assessments & Certification.

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
23 Nov 2026	27 Nov 2026	Online	$1,000
23 Nov 2026	27 Nov 2026	Physical	$1,500
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$4,500
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$6,000

Ready to enroll or request a customized program? Book online or contact us:

Register Online Now