



MICROSOFT TRAINING

Electrical Equipment Control Systems Course

Develop expertise in designing, programming, and troubleshooting electrical equipment control systems. Optimize operations and ensure system reliability.

DURATION

8 hours

LEVEL

Intermediate

FORMAT

Instructor-Led

- Globally Recognized Certification

- Expert-Led Hands-On Training

- Flexible Scheduling

Computer Pride | 1st Floor, ICEA Building, Kenyatta Avenue, Nairobi | www.computer-pride.co.ke

COURSE OVERVIEW

This intermediate 8-hour course on Electrical Equipment Control Systems, delivered by Computer Pride and leveraging Microsoft's ecosystem insights, provides a comprehensive foundation in the principles and practical applications of industrial control. Participants will delve into the core components of modern automation, including Programmable Logic Controllers (PLCs), Human-Machine Interfaces (HMIs), Supervisory Control and Data Acquisition (SCADA) systems, and industrial networking protocols. The curriculum emphasizes hands-on understanding of how these technologies integrate to manage and optimize electrical equipment, ensuring efficient and safe operational environments.

By mastering the concepts taught, students will gain the skills necessary to design, implement, and troubleshoot robust control systems. This course is particularly beneficial for professionals seeking to enhance their expertise in automation, process control, and the integration of smart industrial solutions, potentially leveraging Microsoft's data platforms for analytics and predictive maintenance. Graduates will be well-equipped to contribute to projects that demand precision, reliability, and advanced automation techniques, driving productivity and innovation in various industrial sectors.

Duration	8 hours
Level	Intermediate
Vendor	Microsoft

COURSE CURRICULUM

01 Module 1: Introduction to Industrial Control Systems

- Fundamentals of Electrical Control Systems
- Overview of PLCs, HMIs, and SCADA Systems
- Control System Architectures and Components
- Safety Standards and Best Practices in Industrial Automation

02 Module 2: PLC Programming Fundamentals

- Ladder Logic Programming (IEC 61131-3 standards)
- Basic Control Instructions (Timers, Counters, Relays)
- Introduction to Structured Text and Function Block Diagramming
- PLC Hardware Configuration and I/O Mapping

03 Module 3: HMI and SCADA System Design

- Principles of Human-Machine Interface (HMI) Development
- SCADA System Architecture and Data Acquisition
- Alarm Management and Data Logging
- Creating Intuitive Graphical User Interfaces for Operators

04 Module 4: Industrial Networking and Communication

- Common Industrial Communication Protocols (Modbus, Profibus, Ethernet/IP)
- Network Topologies and Configuration for Control Systems
- Data Exchange between PLCs, HMIs, and SCADA
- Introduction to OPC UA for secure industrial communication

05 Module 5: Integration and Troubleshooting

- Integrating Electrical Equipment with Control Systems
- System Testing and Commissioning Procedures

- Diagnostic Tools and Troubleshooting Techniques for Control Systems
- Introduction to Industrial Cybersecurity for Control Networks

CAREER PATHWAYS

Graduates of this program are prepared for the following roles:

- > **Industrial Automation Engineer specializing in PLC and SCADA integration**
- > **Control Systems Technician focused on electrical equipment management**
- > **Smart Factory Systems Integrator leveraging Microsoft technologies for operational efficiency**

FREQUENTLY ASKED QUESTIONS

Q: What specific control system platforms or software will be used for hands-on exercises in this course?

This course leverages industry-standard simulation software and conceptual frameworks compatible with major PLC brands (e.g., Rockwell, Siemens) to teach programming and system integration. While not tied to a single vendor's hardware, it emphasizes universal principles and, where applicable, discusses integration points with Microsoft's cloud services (like Azure IoT Edge) for data analytics and remote monitoring, ensuring broad applicability.

Q: What are the recommended prerequisites for someone looking to take this intermediate Electrical Equipment Control Systems Course?

Participants should have a foundational understanding of basic electrical principles, digital electronics, and an aptitude for logical problem-solving. Prior exposure to general programming concepts or a basic understanding of industrial processes would be highly beneficial, though not strictly mandatory, as the course will build upon fundamental concepts.

Q: How does this course address the increasing demand for smart industrial solutions and the role of data in electrical equipment control?

This course introduces concepts of data acquisition from control systems and touches upon how this data can be leveraged. While the primary focus is on direct control, it provides a gateway to understanding how modern electrical equipment control systems can integrate with advanced analytics platforms, including potential future integration with Microsoft's Azure IoT services for predictive maintenance, operational efficiency, and real-time insights into equipment performance.

ABOUT COMPUTER PRIDE



East Africa's Premier IT Training Center

With over 15 years of excellence, Computer Pride delivers globally recognized certification programs from leading technology vendors. Located on Kenyatta Avenue in Nairobi's CBD, our state-of-the-art facilities and expert instructors have empowered thousands of professionals across East Africa.

15+

Years of Excellence

10,000+

Professionals Trained

50+

Vendor Certifications

READY TO ENROL?

Take the next step in your technology career.

Location

1st Flr, ICEA Building
Kenyatta Ave, Nairobi

Email

info@computer-pride.co.ke

Phone

+254 705 900 900

www.computer-pride.co.ke