



# الدورة التدريبية الاحترافية لأنظمة التحكم PLC (10 أيام)



**AGILE LEADERS**  
Training Center

12 - 23 Jan 2027  
دبي - Road Zayed Sheikh Marriott by Inn Residence



## الدورة التدريبية الاحترافية لأنظمة التحكم PLC (10 أيام)

الرسوم: Road Zayed Sheikh Marriott by Inn Residence - دبي - الموقع: 12 - 23 Jan 2027 التاريخ: 36253\_19129 الارجح: Euro 13000

### Course Overview:

The Programmable Logic Controller PLC Professional Training Course 10 Days is a comprehensive and hands-on program designed to equip participants with the essential skills and knowledge required to excel in PLC programming and applications. This course covers a wide range of topics, from the basics of PLC CPU modules and memory devices to advanced concepts such as PID control and industrial automation. Participants will gain practical experience using PLC simulation software, specifically the Rockwell Logix 500 PLC, to design, test, and -debug ladder logic programs. The course emphasizes real-world applications, ensuring that learners are well prepared to implement and maintain PLC systems in various industrial settings. Key areas of focus include PLC I/O systems, discrete and analogue I/O, Allen-Bradley I/O, remote I/O, PLC programming terminals, installation safety, maintenance, and troubleshooting techniques. By the end of the course, participants will have a solid understanding of PLC networking, data highways, Ethernet, and number systems used in PLCs, making them proficient in the latest industry standards and practices.

### Target Audience:

- Electrical Engineers
- Automation Engineers
- Maintenance Technicians
- Control Systems Engineers
- Manufacturing Engineers
- Instrumentation Technicians
- PLC Programmers

### Targeted Organizational Departments:

- Manufacturing and Production
- Maintenance and Engineering
- Automation and Control Systems
- Electrical and Instrumentation
- Quality Assurance
- Research and Development

## Targeted Industries:

- Automotive
- Pharmaceuticals
- Food and Beverage
- Oil and Gas
- Chemical Processing
- Power Generation
- Water and Wastewater Treatment
- Packaging and Material Handling

## Course Offerings:

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

- Understand the fundamentals of PLC CPU modules, memory devices, and data storage
- Utilize PLC multiprocessing and scan functions effectively
- Gain a comprehensive overview of PLC systems, their evolution, and advantages
- Identify and work with key PLC components and ladder logic
- Configure and troubleshoot PLC I/O systems, including discrete and analog I/O
- Implement Allen-Bradley I/O and remote I/O in PLC applications
- Program PLCs using various terminals and software
- Ensure proper installation, grounding, and maintenance of PLC systems
- Implement advanced PLC functions such as timers, counters, sequencers, and data transfer
- Apply math functions, process control techniques, and PID control in PLC programming
- Network PLCs and understand data highways, Ethernet, and number systems
- Utilize digital logic, Boolean algebra, and DeMorgan's theorem in PLC applications
- Differentiate between RTUs, PACs, and PLCs, and understand their uses in automation

## Training Methodology:

The training methodology for the Programmable Logic Controller PLC Professional Training Course 10 Days is designed to maximize participant engagement and learning. The course includes a blend of theoretical instruction and practical, hands-on exercises. Participants will engage in case studies, group work, and interactive sessions to reinforce their understanding of key concepts. Real-world examples and simulations will be used to illustrate the application of PLCs in industrial settings. Feedback sessions will provide opportunities for learners to discuss their progress and address any challenges they encounter. The use of PLC simulation software allows participants to practice programming and troubleshooting in a controlled environment, ensuring they gain practical experience that can be directly applied in their workplace.

## Course Toolbox:

- Comprehensive course manual
- PLC simulation software PLCLogix 500
- Workbooks and reading materials
- Online resources and tutorials
- Checklists and templates for PLC installation and maintenance
- Access to a dedicated online learning portal for additional practice and resources



## Course Agenda:

### Day 1: Introduction to PLCs and Central Processing Unit

- Introduction to PLCs and Their Evolution Topic 1: •
- Overview of PLC Systems and Applications Topic 2: •
- Advantages of PLCs Over Relay Logic Systems Topic 3: •
- Key Components of PLC Systems Topic 4: •
- Introduction to the Central Processing Unit CPU Topic 5: •
- Memory Devices and Storage in PLCs Topic 6: •
- Recap of the day's topics and key takeaways Reflection & Review: •

### Day 2: Memory and I/O Systems

- Detailed Study of PLC Memory Utilization Topic 1: •
- Multiprocessing and PLC Scan Functions Topic 2: •
- Introduction to I/O Systems in PLCs Topic 3: •
- Discrete Inputs and Outputs Topic 4: •
- Analog Inputs and Outputs Topic 5: •
- I/O Addressing and Allen-Bradley I/O Parameters Topic 6: •
- Recap of the day's topics and key takeaways Reflection & Review: •

### Day 3: Programming Terminals and Installation

- Overview of Programming Terminals Topic 1: •
- Hand-Held Programming Terminals Topic 2: •
- Computer-Based Programming Terminals Topic 3: •
- Application of Peripheral Devices in PLC Networks Topic 4: •
- Safety Precautions in PLC Installation Topic 5: •
- Grounding Techniques for PLCs Topic 6: •
- Recap of the day's topics and key takeaways Reflection & Review: •

### Day 4: Maintenance and Relay Logic

- Preventative Maintenance for PLC Systems Topic 1: •
- Troubleshooting Techniques for PLCs Topic 2: •
- Introduction to Relay Logic Topic 3: •
- Relay Logic Diagrams and Principles Topic 4: •
- Sizing and Rating of Electromagnetic Contactors Topic 5: •
- Timing Circuits and Their Applications Topic 6: •
- Recap of the day's topics and key takeaways Reflection & Review: •

## Day 5: Ladder Logic Programming

- Basics of Ladder Logic Programming Topic 1: •
- Writing Ladder Logic Programs Topic 2: •
- Running and Testing Ladder Logic Programs Topic 3: •
- Safety Circuitry in Ladder Logic Systems Topic 4: •
- I/O Addressing in Ladder Logic Topic 5: •
- Programming Restrictions and Best Practices Topic 6: •
- Recap of the day's topics and key takeaways Reflection & Review: •

## Day 6: Advanced Timing and Counting Functions

- Introduction to PLC Timers Topic 1: •
- Allen-Bradley Timing Functions Topic 2: •
- Cascading and Reciprocating Timing Circuits Topic 3: •
- Overview of PLC Counters Topic 4: •
- Allen-Bradley Counting Functions Topic 5: •
- Combining Timers and Counters Topic 6: •
- Recap of the day's topics and key takeaways Reflection & Review: •

## Day 7: Program Flow and Sequencers

- Program Flow Instructions in PLCs Topic 1: •
- Master Control Relays and Zone Control Topic 2: •
- Writing Subroutines in Ladder Logic Topic 3: •
- Introduction to Sequencers in PLCs Topic 4: •
- Event-Driven Sequencers Topic 5: •
- Sequencer Charts and Their Maintenance Topic 6: •
- Recap of the day's topics and key takeaways Reflection & Review: •

## Day 8: Data Transfer and Math Functions

- Principles of Data Transfer in PLCs Topic 1: •
- Move Instructions and Shift Registers Topic 2: •
- Data Comparison Functions Topic 3: •
- Introduction to Math Functions in PLCs Topic 4: •
- Scaling and Ramping Techniques Topic 5: •
- Combining Math Functions in Ladder Logic Topic 6: •
- Recap of the day's topics and key takeaways Reflection & Review: •



## Day 9: Process Control and Digital Logic

- Basics of Process Control in PLCs Topic 1: •
- Open-Loop vs Closed-Loop Control Systems Topic 2: •
- PID Control and Tuning Parameters Topic 3: •
- Introduction to Digital Logic Topic 4: •
- Boolean Algebra and Theorems Topic 5: •
- Applying Digital Logic in Ladder Logic Topic 6: •
- Recap of the day's topics and key takeaways Reflection & Review: •

## Day 10: Advanced Topics and Integration

- Introduction to RTUs and PACs Topic 1: •
- RTU and PAC Connections and Communications Topic 2: •
- DNP3 Protocol and Alarm Management Topic 3: •
- Industrial Automation and Flexible Manufacturing Systems Topic 4: •
- Networking and Data Highways in PLCs Topic 5: •
- Number Systems and Codes in PLCs Topic 6: •
- Final review of the course, key takeaways, and Q&A session Reflection & Review: •

## How This Course is Different from Other PLC Training Courses:

The Programmable Logic Controller PLC Professional Training Course 10 Days stands out due to its comprehensive and practical approach to PLC training. Unlike other courses, this program provides an in-depth understanding of both fundamental and advanced PLC concepts, including the use of PLCLogix 500 simulation software for hands-on practice. The course covers a wide range of topics, from basic CPU modules and memory devices to complex process control and networking. Participants will benefit from interactive sessions, real-world case studies, and practical exercises that reinforce their learning and ensure they are well-prepared to apply their skills in industrial settings. The course's focus on safety, maintenance, and troubleshooting further distinguishes it from other programs, making it an essential training for anyone looking to excel in PLC programming and applications.



## فئات الدورات التدريبية



HR TRAINING & DEVELOPMENT

دورات إدارة و تطوير الموارد البشرية



دورات إدارة و تحليل البيانات ودورات علم البيانات



دورات إدارة الجودة وتطوير العمليات



الدورات التدريبية في مجال البيئة والاستدامة



دورات التسويق وإدارة علاقات العملاء وإدارة المبيعات



دورات التدريب القانوني والمشتريات والتعاقدات



دورات الاتصال الجماهيري و السياسات والعلاقات العامة



دورات النظم السبراني ودورات تقنية المعلومات



دورات الصيانة ودورات المجالات الهندسية المتنوعة



دورات الصحة والسلامة والأمن المهني



دورات السكرتارية و إدارة المكاتب



دورات الحوكمة وإدارة المخاطر والامتثال



## فئات الدورات التدريبية



دورات معتمدة بشهادة CPD



دورات في مجالات القيادة والإدارة



دورات المهارات الشخصية وتطوير الذات



دورات المحاسبة و التمويل و دورات الإدارة  
الهائية



دورات مكتب إدارة المشاريع وإدارة المشاريع  
الرشيقية



دورات معتمدة من قبل هيئات دولية

## مدن التدريب



اسطنبول - تركيا



أمستردام - هولندا



أكرا - غانا



أثينا - اليونان



الرياض - المملكة العربية السعودية



الدوحة - قطر



الدار البيضاء - المغرب



الجبيل - المملكة العربية السعودية



باريس - فرنسا



المنامة - مملكة البحرين



الكويت - الكويت



القاهرة - مصر



براغ - جمهورية التشيك



بانكوك - تايلند



بالي - جمهورية إندونيسيا



باكو - أذربيجان

## مدن التدريب



جاكرتا - جمهورية اندونيسيا



تبليسي - جورجيا



بوكيت - تايلاند



برشلونة - إسبانيا



روما - إيطاليا



دبي - الإمارات العربية المتحدة



جوهانسبرغ - جنوب إفريقيا



جنيف - سويسرا



شرم الشيخ - مصر



سيول - كوريا الجنوبية



سان دييغو - الولايات المتحدة الأمريكية



زنجبار - تنزانيا



طوكيو - اليابان



طشقند - أوزبكستان



طرابزون - تركيا



شيكاغو - الولايات المتحدة الأمريكية

## مدن التدريب



كوالالمبور - ماليزيا



فيينا - النمسا



عن بعد - منصة زووم



عمان - المملكة الأردنية الهاشمية



ماربيا - اسبانيا



لندن - المملكة المتحدة



لانكاوي - ماليزيا



كيب تاون - جنوب إفريقيا



ميلان - إيطاليا



مونترنو - سويسرا



مسقط - سلطنة عمان



مدريد - إسبانيا



نيس - فرنسا



نيروبي - كينيا



ميونخ - ألمانيا

# WHO WE ARE

Agile Leaders is a renowned training center with a team of experienced experts in vocational training and development. With 20 years of industry experience, we are committed to helping executives and managers replace traditional practices with more effective and agile approaches.

## OUR VISION

We aspire to be the top choice training provider for organizations seeking to embrace agile business practices. As we progress towards our vision, our focus becomes increasingly customer-centric and agile.

## OUR MISSION

We are dedicated to developing value-adding, customer-centric agile training courses that deliver a clear return on investment. Guided by our core agile values, we ensure our training is actionable and impactful.

## WHAT DO WE OFFER

At Agile Leaders, we offer agile, bite-sized training courses that provide a real-life return on investment. Our courses focus on enhancing knowledge, improving skills, and changing attitudes. We achieve this through engaging and interactive training techniques, including Q&As, live discussions, games, and puzzles.



**AGILE LEADERS**  
Training Center

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