TECHNICAL
EDUCATION
ACADEMY

School of Engineering

COURSE PROGRAMME

000647

VEND011 - Automation PLC with RSlogix 5000

In an era where automation is not just an advantage but a necessity, the need for skilled professionals in programming and managing PLC systems is more crucial than ever.



Learn from the Best in the Business!

Course overview

Intermediate level

Why take this course

In an era where automation is not just an advantage but a necessity, the need for skilled professionals in programming and managing PLC systems is more crucial than ever. Recognizing this, our cutting-edge training programme is meticulously designed to empower participants with a deep understanding and hands-on experience in Rockwell Automation's RSLogix 5000 software, a cornerstone in the field of industrial automation. This programme stands as a beacon for those eager to excel in the dynamic world of PLC systems, offering a comprehensive journey from foundational concepts to advanced programming and troubleshooting techniques.

Embarking on this educational adventure, participants will first dive into the fascinating world of PLC systems, exploring their architecture, operation, and the pivotal role they play in automation. A dedicated module introduces learners to the RSLogix 5000 software, where they will master programming languages like ladder logic, function blocks, and structured text. This foundation paves the way for more complex learning, such as designing intricate ladder logic programs and efficiently organizing data for optimal program design. The course structure ensures a seamless transition from theoretical knowledge to practical application, enabling learners to bring their innovative ideas to life.

As the programme unfolds, it delves into the intricacies of network communication using ControlNet and Ethernet, equipping participants with the skills to configure and troubleshoot networked PLC systems. The curriculum is designed to not just impart knowledge but to instill a problem-solving mindset, critical for diagnosing and rectifying faults in real-world scenarios. Furthermore, a special focus on motion control programming offers a deep dive into the sophisticated world of automated control, preparing learners for the challenges of modern industrial environments.

This training programme is not just an educational course; it is a transformational journey that prepares participants for the future of automation. Upon completion, graduates will not only possess a profound understanding of PLC systems and RSLogix 5000 but will also be adept at applying this knowledge to develop, monitor, and troubleshoot PLC-controlled processes. This programme is your gateway to becoming a pivotal part of the automation industry, opening doors to numerous opportunities in designing and managing advanced control systems. Join us to embark on this journey of learning and innovation, and arm yourself with the skills to lead in the automation revolution.

Who it is for and how it helps

This Rockwell Automation PLC with RSLogix 5000 training programme is meticulously designed for a diverse audience with varying levels of experience and expertise in industrial automation. It caters to the needs of professionals who are keen to deepen their knowledge, enhance their skills, and stay ahead in the rapidly evolving field of automation technology. The course is particularly beneficial for:

Course overview — continued

• Electrical Engineers and Technicians: Professionals working in the electrical field who wish to expand their skills into the realm of automation and control systems will find this course invaluable. It provides the necessary knowledge to bridge the gap between traditional electrical engineering and modern automated systems.

• Automation and Control System Engineers: For those already in the field of automation, this course offers an opportunity to upgrade their skills with specific focus on Rockwell Automation's RSLogix 5000 software, enhancing their capabilities in designing, implementing, and troubleshooting PLC-based systems.

• Maintenance Personnel: Individuals responsible for the maintenance and troubleshooting of PLC systems will benefit greatly from the hands-on training and practical knowledge provided, enabling them to diagnose faults more efficiently and minimize system downtime.

• Project Managers and Supervisors: Managers overseeing automation projects will gain insights into the technical aspects of PLC programming and network communication, allowing for more informed decision-making and effective project management.

• PLC Programmers: Programmers looking to specialize in or switch to RSLogix 5000 will find this course perfect for acquiring specialized skills in this widely used platform, broadening their expertise and career opportunities in the process.

• Engineering Students and Graduates: Students pursuing degrees in electrical engineering, mechatronics, industrial engineering, or related fields will benefit from the practical, real-world applications of PLC systems, giving them a competitive edge in the job market.

• Technical Staff Looking to Transition into Automation: Professionals working in related technical fields who are looking to transition into industrial automation will find this course a solid foundation upon which to build their new career path.

This training programme is designed not just to impart theoretical knowledge but to equip attendees with practical skills and competencies. By the end of the course, participants will be well-prepared to take on challenges in the design, implementation, and maintenance of PLC-controlled systems, making them valuable assets in a variety of industrial and manufacturing sectors.

What you will learn

- Understand PLC Systems
- Develop Proficiency in RSLogix 5000
- Manage Network Communications
- Design Complex Ladder Logic and Programmes
- Apply Practical Skills in Project Development
- Implement Motion Control Programming
- Diagnose and Troubleshoot Effectively

Curriculum

Modules 01–05

01 Introduction to PLC Systems

- Overview of PLCs, different types
- How PLCs work Introduction to automation processes
- Basics of ladder logic programming
- Understanding PLC hardware, and considerations for design and maintenance

02 Programming with RSLogix 5000

- Introduction to Allen Bradley
- RSLogix 5000 software overview
- Basics of PLC programming including ladder logic
- Function block programming
- Structured text programming, and basic programming constructs (IF, THEN, ELSE, WHILE, FOR)

03 Network Communication: ControlNet and Ethernet

- Fundamentals of ControlNet, including the Common Industrial Protocol (CIP)
- OSI model, physical and data link layers
- ControlLogix Processor I/O modules
- Introduction to Ethernet
- Use of ping functions, subnet masks
- IP addressing
- EtherNet cabling options, and routers

04 Advanced Ladder Logic and Program

- Design Designing basic and advanced ladder logic programs
- Creating control rungs, batch cycles, steps, expressions, and procedural programming
- Organizing data for efficient program design, tasks, programs, and routines in RSLogix 5000

05 Practical Application and Project Development

- Scope definition for PLC projects, component selection, documenting project scope
- Configuration of RSLogix 5000 controllers

Curriculum

Modules 05–07 · Module 05 — continued

- Communication over Ethernet networks
- Interacting with I/O modules

06 Motion Control Programming

- Introduction to motion control programming
- State instructions
- Fault reset, shutdown procedures
- Direct drive controls
- Motion move instructions, group instructions, event instructions, multi-axis coordinated motion instructions
- Master-driven axis control

07 Diagnostics, Troubleshooting, and Maintenance

- Techniques for toggling bits and I/O tags
- Using trend charts for system troubleshooting
- Analyzing and correcting faults
- Identifying controller, chassis
- Power supply issues

Participation and contacts

Joining the programme

Contact the Academy and quote course code 000647 to confirm dates, delivery format, prices and enrolment terms.

Training for your team

Tell us your business goals, the roles and number of participants, and your preferred dates and location. This will help us discuss the right training option.

Preparing for the programme

The published programme does not specify any prerequisites. Contact us before enrolling to confirm how to prepare.

Discuss your training needs

mail@tecedu.org
www.tecedu.academy

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