ControlLogix/Studio 5000

Studio 5000 Logix Designer Level 4: Function Block Programming / Structured Text /Sequential Function Chart Programming

Rockwell Automation

Allen-Bradley by ROCKWELL AUTOMATION

Course Number

CCP152 + CCP154

Course Purpose

This course is a skill-building programming course that provides you with an understanding of Studio 5000 Logix Designer® function block diagrams and terminology. This course also provides you with the resources and hands-on practice required to efficiently program a Logix5000™ controller using function block diagrams.

You will have an opportunity to use Logix Designer application and perform software tasks to meet the requirements of a given functional specification. In addition to using function blocks, you will perform parameter modifications to individual function block instructions, as well as create and develop function block diagram programs and routines. You will also gain experience with a variety of function block instructions, including PIDE and add-on instructions.

You will learn how to select instructions, expressions and constructs and then enter these elements and more into a routine. You will have an opportunity to translate a functional specification in to a sequential function chart. Also, you will learn how to test sequential function chart logic using forces and step throughs.

The instructor will demonstrate the relevant procedures required to program with structured text and sequential function charts. You will be provided ample opportunities to create and test their own projects.

COURSE AGENDA

- Creating a Function Block Diagram
- Programming Logical Function Block Instructions
- Programming Timer and Counter Function Block Instructions
- Programming Analog Function Block Instructions
- Programming Device Driver Function Block Instructions
- Selecting Timing Modes in a Function Block Instruction
- Programming a Totalizer Function Block Instruction
- Programming and Monitoring an RMPS (Ramp/Soak) Function Block Instruction
- Controlling Program Flow Using Function Block Instructions
- Programming a PID Loop Using Function Block Diagram

  Block Diagram
- Tuning a PID Loop Using ActiveX Controls
- Developing an Add-On Instruction in Function
- Programming Assignments, Expressions and Instructions in Structured Text within a Logix Designer Project
- Programming Constructs and Comments in Structured Text within a Logix Designer Project
- Designing a Sequential Function Chart
- Programming a Sequential Function Chart in a Logix Designer Project
- Testing a Sequential Function Chart in a Logix Designer Project
- Storing and Resetting Sequential Function Chart Data in a Logix Designer Project
- Resetting and Pausing a Sequential Function Chart in a Logix Designer Project

WHO SHOULD ATTEND

Individuals who are responsible for developing, debugging, and programming Logix5000 controllers using the Logix Designer application with function block diagrams or structured text and sequential function chart routines

Also, individuals who use ActiveX controls in an operator interface, such as FactoryTalk® View ME software, should attend this course.

PREREQUISITES

To successfully complete this course, the following prerequisites are required:

- Ability to perform basic Microsoft Windows tasks
- Understanding of basic measurement and control theory, including basic loop control
- Completion of the Studio 5000 Logix Designer Level 3: Project Development course (Course No. CCP143) or equivalent experience

STUDENT MATERIALS

To enhance and facilitate the students' learning experiences, the following materials are provided as part of the course package:

- Student Manual
  - Contains the topical outlines and exercises
  - Used to follow presentations, take notes, and work through exercises
- Studio 5000 Logix Designer and Logix5000 Procedures Guide
  - Provides the steps required to complete basic software tasks common to all Logix5000 controllers

HANDS-ON PRACTICE

To gain real-world programming experience, you will be given a functional specification for a fictitious batch process mixer, where bulk ingredients are mixed to produce a product. You will be the programmer for this batch mixer and must follow the functional specification, which will be the basis for all hands-on exercises in this course.

After completing all exercises, you will have developed a Logix5000 project for the fictitious batch process mixer. As you develop your project, you will be given opportunities to run it using an ABT-TDCLX3-B workstation. This programming and process-based application experience can then be transferred to your own job responsibilities.

NEXT LEARNING LEVEL

Once you have mastered the function block diagram skills covered in this course, you will be able to expand your Logix5000 programming knowledge by attending other Logix5000 programming courses, such as the Studio 5000 Logix Designer Level 4: Kinetix 6000 (SERCOS) Programming course (Course No. CCN145).

COURSE LENGTH

This combined course takes 3 days

TO REGISTER

To register for this or any other Rockwell Automation training course, contact your local authorized Allen-Bradley® Distributor or your local Sales/Support office for a complete listing of courses, descriptions, prices, and schedules.

You can also access course information via the Web at **http://www.rockwellautomation.com/training**

To be respectful of the environment, Rockwell Automation is transitioning some of its training courses to a paperless format. Students are asked to complete downloads and bring personal devices to these classes. A full list of digital/paperless courses is currently available through your local distributor.

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