ControlLogix®/Studio 5000™

Studio 5000 Logix Designer Level 4: Kinetix® 6500 (CIP) Programming

COURSE AGENDA

Day 1
- Creating a Studio 5000 Logix Designer™ Project for Integrated Motion on an EtherNet/IP™ Network
- Adding Drives and Configuring Axes for Integrated Motion on an EtherNet/IP Network
- Testing Hardware for Integrated Motion on an EtherNet/IP Network
- Autotuning Axes for Integrated Motion on an EtherNet/IP Network

Day 2
- Planning a Motion Project
- Creating User-Defined Data Types
- Creating an Axis-Level Program Shell and Axis-Level Tags
- Programming Axis-Level Dispatch and Power Up Routines
- Programming the Axis-Level Command Routine
- Programming the Axis-Level Waiting Routine
- Programming the Aborting Routine

Day 3
- Programming the Clearing Routine
- Programming the Stopping Routine
- Programming the Resetting Routine
- Programming the Starting Routine
- Replicating the Axis Program
- Replicating an Application-Level Program

Day 4
- Programming the Execute Routine
- Adding a Virtual Axis
- Programming Electronic Gearing
- Programming Electronic Camming

COURSE NUMBER: CCN144

Course Purpose

After completing this course, you should be able to configure, test, tune, and program CIP motion axes in the Studio 5000 Logix Designer programming environment.

Building upon the skills gained in the *Studio 5000™ Logix Designer Level 3: Project Development* (CCP143) course, you will learn how to apply the Logix5000 architecture to a multi-axis CIP motion control system. You will also practice project planning and efficient programming skills necessary for translating a machine specification into reliable ladder logic code.

Because all Logix5000 products share common features and a common operating system, you will be able to apply the configuring and programming motion control skills you learn in this course to any of the Logix5000 controllers that are capable of motion control.

Who Should Attend

Individuals who need to configure and program Logix5000 motion control systems should attend this course. In addition, only students who are already familiar with Logix5000 systems and general motion control should attend this course.

Prerequisites

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

- Ability to perform basic Microsoft Windows® tasks

- Completion of the *Motion Control Fundamentals* course (Course No. CCN130) or equivalent knowledge of drives, feedback devices, and servo motion systems

- Completion of the *Studio 5000 Logix Designer™ Level 3: Project Development* course (Course No. CCP143) or equivalent experience

Technology Requirements

All technology is provided for student use in the classroom by Rockwell Automation. It is not necessary for students to bring any technology with them when attending this course.

Student Materials

To enhance and facilitate your learning experience, the following materials are provided as part of the course package:

- *Student Manual*, which includes the key concepts, definitions, and examples presented in this course.

- *Lab Book*, which provides learning activities through practice and hands-on exercises. Solutions are included after each exercise for immediate feedback.

- *Studio 5000 Logix Designer™ and Logix5000™ Motion Procedures Guide*, which provides the steps required to complete common motion-related tasks within a Logix Designer project, as well as basic project organization tasks.

- The *Logix5000 Documentation Reference Guide,* which contains several relevant technical publications. This searchable, electronic resource contains the most frequently referenced programming information and is a quick and efficient on-the-job resource. The Documentation Reference Guide includes the *Logix5000 Controllers Motion Instructions* manual, which provides the details of the motion instructions available for Logix5000 controllers.

Hands-On Practice

Hands-on practice is an integral part of learning and this course offers extensive hands-on opportunities. In this course, you will use a workstation containing real and simulated devices to practice the tasks involved in programming a motion control application.

After configuring a project that contains the required hardware, you will program a variety of motion routines necessary for implementing a state model in Logix Designer. You will also employ rapid program development techniques to leverage existing program modules for use with other axes and applications. Finally, you will begin to employ dependent motion in the form of gearing and camming instructions. When complete, you will have practiced the skills required for developing and integrating reliable, motion-related code modules.

Next Learning Level

Once you have mastered the skills covered in this course, you will be prepared to attend other Rockwell Automation training courses that will enable you to optimize your motion control application. One example of such a course is the *Studio 5000™ Logix Designer Level 5: Advanced Motion Programming* course (CCN190).

Course Length

This is a four-day course.

Course Number

The course number is CCN144.

IACET CEUs

CEUs Awarded: 2.8

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

www.rockwellautomation.com