

**Overview:**

This course (CCN144-A-EL) will teach you to configure, test, tune, and program CIP Motion™ axes using the Studio 5000 Logix Designer® application.

Building upon the skills gained in the Studio 5000 Logix Designer Level 3: Project Development course, you will learn how to apply the Logix 5000™ architecture to a multi-axis CIP™ motion control system. You will also practice efficient programming skills necessary for translating a machine specification document into reliable ladder logic code. Because all Logix 5000 products share common features and a common operating system, you will be able to apply the motion control configuring and programming skills you learn in this course to any of the Logix 5000 controllers that are capable of motion control.

**Objectives:**

- Turn on time synchronization
- Create the motion group
- Create a servo axis for integrated motion on an EtherNet/IP network
- Add and configure drives using Studio 5000 Logix Designer software
- Associate the servo axes to their drives
- Configure the axes
- Run hookup tests
- Test digital inputs
- Tune axes for integrated motion on an EtherNet/IP network
- Create user-defined data types for motion applications
- Use motion direct commands
- Use step sequence logic in integrated motion application code
- Program Motion Servo On (MSO) instructions
- Program Motion Servo Off (MSF) instructions
- Program Motion Axis Home (MAH) instructions
- Program Motion Axis Stop (MAS) instructions
- Program Motion Axis Move (MAM) instructions
- Program Motion Axis Jog (MAJ) instructions
- Program Motion Axis Shutdown (MASD) instructions
- Program Motion Axis Fault Reset (MAFR) instructions
- Program Motion Axis Shutdown Reset (MASR) instructions
- Program group motion instructions
- Program Motion Change Dynamics (MCD) instructions
- Program the merge feature for motion move instructions
- Add a virtual axis to a project
- Program Motion Axis Gear (MAG) instructions
- Program Motion Axis Position Cam (MAPC) instructions
- Program Motion Axis Time Cam (MATC) instruction

**Who Should Attend:**

Individuals who need to configure and program Logix 5000™ motion control systems should attend this course. In addition, only students who are already familiar with Logix 5000 systems and general motion control should attend this course.

**Prerequisites:**

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

- Motion Control Fundamentals course (Course No. CCN130)
- Studio 5000 Logix Designer Level 3: Project Development (Course No. CCP143)

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