# **SIEMENS**

# **SIMOTION System Maintenance**

# **General Information**

Course Code	SCT-DVMSYM1A
Global Code	MC-SMO-SYS
Length	4½ Days
CEUs	2.9

# Audience

This course is for Maintenance Technicians and Site Engineers who are responsible for maintaining systems with Siemens motion-based control systems including SIMOTION and SINAMICS S.

#### Prerequisites

• Basic computer skills OR

Basic Industrial Electronics experience

#### Profile

This course is intended for sustainers of Siemens motion-based systems. The goal of this course is to build foundation skills for quick diagnostics, troubleshooting and repair of the motion system controls. Students will learn the system hardware, basic software tools and communications to a level necessary to troubleshoot common problems and support system commissioning and operation. This course provides an introduction to the Scout programming and diagnostic environment, and basics of system configuration and programming, tuning, project backup and restoration, diagnostic tools, and other project engineering and maintenance topics.

The first 2 days (approximately) are spent on Sinamics and Scout topics, and the latter 2 ½ days are spent on SIMOTION topics. This course is 60%+ hands-on exercises which are targeted at developing skills and building experience with Siemens motion system components.

# Objectives

Upon completion of this course, the student shall be able to:

- Commission a SINAMICS S120 drive controller for use with SIMOTION.
- Navigate a typical motion systems project and use the software tools, documentation and help system for efficient troubleshooting.
- Perform project backup and restoration, and firmware migration.

- Properly utilize the various types of motion system tasks, such as the background task, interrupt tasks, cyclic tasks, fault tasks and motion tasks.
- Create and monitor system variables.
- Interpret diagnostic codes and messages.

# Topics

- 1. SINAMICS Family Overview
  - a. Infeed's and Power Modules
  - b. Control Units, Terminal & Sensor Modules
  - c. Drive CLIQ rules and topology
- 2. Commissioning and Diagnostic Tool Scout
  - a. Getting connected
  - b. Navigate project tree, expert list
  - c. Drive Navigator
  - d. User lists and Scripts
- 3. SINAMICS Commissioning
  - a. Online and offline configuration
  - b. Using the Control panel
  - c. Uploading, downloading, RAM-ROM, archiving and retrieving
  - d. Troubleshooting the Topology and Firmware migration
  - e. Function generator, Trace, and Optimization
  - f. BiCo interconnections
- 4. Totally Integrated Automation
  - a. PROFIBUS networking
  - b. Control and Status Words
  - c. Process data and parameter data
- 5. Analog & Setpoint Channels and Control loops
- 6. Closed Loop Control
  - a. Servo Control
  - b. Torque & Speed Control
- 7. he SIMOTION System
  - a. Overview of the software and hardware
- 8. Starting up the SIMOTION control
  - a. Hardware configuration and Netpro configuration
  - b. Configuring Axes and Technology objects
  - c. SIMOTION Control Panel
  - d. Optimizing Dynamic Servo Control (DSC)
  - e. Absolute and incremental encoder configuration
- 9. Programming in MCC and ladder and testing simple user programs
  - a. Configuring, controlling, and monitoring the Execution System
  - b. Monitoring System and Technology object (TO) variables
  - c. Creating variables using Structured text
- 10. Using IT DIAG
  - a. Connecting up to controller using Ethernet and browser
  - b. Diagnostics and troubleshooting

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