

## Siemens Mechatronic Systems Certification Program (SMSCP) Instructor Certification: Level 2

Title: SMSCP\_L2

### Prerequisites:

- § Completion of Systems Approach Paradigm Week (SAPW) Instructor Certification course
- § Completion of Level 1 Instructor Certification course is strongly recommended
- § Teaching or industry background in Mechatronics or Electrical or Mechanical Engineering
- § Basic knowledge of Siemens PLCs and their programming

### Objective:

This course covers the application of Systems Approach to the content topics of the six Level 2 courses: Process Control Technologies; Introduction to Totally Integrated Automation; Automation Systems; Motor Control; Mechanics and Machine Elements; Manufacturing Processes.

This Instructor Certification is based on a Train-the-Trainer model: during this course you will apply the didactic teaching methods from the SAPW course to six courses that you can integrate and teach to students at your educational institution or employees at a training center.

Level 2 focuses on the in-depth technical competencies and troubleshooting skills needed for teaching technician-focused programs. Level 2 also includes the development of troubleshooting and industry-oriented problem solving lessons that can be integrated into a classroom setting.

### Course Content:

- § System Approach paradigm and course-specific didactic training in Process Control Technologies; Introduction to Totally Integrated Automation; Automation Systems; Motor Control; Mechanics and Machine Elements; Manufacturing Processes
- § Overview of job profile for Level 2 (Associate, Technician)
- § Review of Systems Approach
- § Review course syllabi
- § Hands-on exercises with mechatronic systems, modules, and sub-systems
- § Commissioning in Industries / Software commissioning
- § Networking
- § Structured programming on mechatronic systems
- § Sequential programming
- § Introduction to process management and Lean
- § Factory simulation, Ball Point Pen Factory
- § Role of factory tours in study programs
- § Control structures of drive trains in mechatronic systems
- § Closed Loop/ Process Control in mechatronic systems
- § Utilization of simulated desktop systems in a classroom setting
- § Overview of Computer aided design (CAD), Computer aided manufacturing (CAM), and Computer numerical control (CNC) concepts
- § Machine elements in mechatronic systems, such as gearboxes
- § Microcontrollers in mechatronic systems
- § Hardware fault implementation and troubleshooting
- § Sample question review for Siemens student examination
- § Troubleshooting strategies for systems
- § Creation of sample lessons utilizing the Systems Approach
- § Review additional Level 2 requirements for mechatronic systems
- § Development of strategies for knowledge transfer from one system to another
- § Implementation workshop for implementation of SMSCP locally

### Notes:

In this course you will work with TIA portal, PROFINET and PROFIBUS, the SIMATIC S7 product family, and LabView



After successfully completing this course, participants will be certified as a Siemens Mechatronic Systems Certified Instructor for Level 2.

**Target Group:**

Teachers

Engineering or Engineering Technology Faculty or Professors

Engineers

Maintenance and Training Managers

**Duration:** 10 Days