Course: AC800 PEC controller and DC/AC drives in process control

ABB "AC 800PEC" is a high-performance control system belonging to the Control IT line of products.

The AC 800PEC controller is the optimum solution for high and low-speed Control requirements for electrical applications and industrial processes, tasks usually carried out by separate PLC units.

The AC 800PEC controller is configured and programmed using Control Builder M, ABB's programming tool complying with IEC 61131-3 standards, and MATLAB®/ Simulink® with Real-Time Workshop®.

Course duration
Two weeks

Course type
Interactive training in a training room and practical exercises with actual items of equipment and small-scale models

Course objectives
By the end of this course, participants will be able to:
> Understand the advantages of the AC 800PEC controller.
> Explain the 800Xa system architecture and the function of the different components.
> Devise a new project and plan the structure of application programs.
> Configure AC 800PEC hardware and the corresponding I/Os combined with Control Builder applications.
> Design and configure applications using a variety of IEC 61131-3 languages.
> Configure OPC connectivity with AC 800PEC.
> Develop libraries for specific projects.
> Perform updates of Firmware and Control Builder application programs.
> Carry out "Back Up" and "Restore" procedures for applications running on AC 800PEC controller.
> Undertake maintenance procedures and troubleshooting.

Course language:
Spanish

Prerequisites:
The participants should have basic knowledge of control systems, DC and AC drives, and applications running on Windows® operating system.

Course modalities:
Option A:
At ABB facilities in Valentín Alsina – Training room IA - Second floor – Building B.

Option B:
Teaching of theoretical concepts at the client's facilities or industrial plant, including light practice with portable training equipment.
Practice with equipment and motors at ABB facilities in Valentín Alsina- Training Room IA – Second floor - Building B, on the agreed full consecutive days according to schedule.

Option C:
Teaching of theoretical concepts at the client's facilities or industrial plant, including light practice with portable training equipment, and remote access to ABB equipment and motors for practice with process models.

ABB

First week: Main theoretical concepts

Day 1: Introduction to AC 800PEC hardware components.
Operating principles of hardware components.
I/O interfaces for AC 800PEC controller.
Communication at upper control levels and integration with Industrial IT.

Day 2: Software tools
Start, download, backup and installation procedures using PECInstaller tool.
Overview of MATLAB/Simulink, enabling application and development engineers to understand all available capabilities.
Configuration and use of PECView tool.
Handling of errors and boot recovery procedures.

Day 3: Basic description of DC drive hardware and firmware components, including basic motor notions.

Day 4: Basic description of AC drive hardware and firmware components, including basic motor notions.

Day 5: Control and communications networks.

Second week: Application of course contents to processes

Day 1: Load distribution strategies in DC and AC motors.
Embedded solutions in Smart Plan Concept (SPC) drive units.
Examples and applications in tube manufacturing processes.

Day 2: Hands-on practice on items of equipment and models.

Day 3: Coiling strategy for flat materials with tension control.
SPC solutions.
Examples and applications in cold rolling mill processes.

Day 4: Hands-on practice on items of equipment and models.

Day 5: System restoration in the event of power outage, facilities equipped with UPS, line-supervision parameter setting.
Time allotted for participants' queries, a deeper understanding of a specific practice at participants' choice.