NL331 PID-Controllers in AC800m

Course description

**Course goal**
The goal of this course is to learn the programming and tuning of a wide range of PID controlled loops. The participants also learn to program simulation for many types of processes.

**Learning objectives**
Upon completion of this course, the participants will be able to:
- Program simple PID loops
- Program a process simulation for a wide range of processes
- Program and tune Master/Slave PID loops
- Program and tune First Order Dead Time loops
- Program and tune a PID Loop for an instable process
- Use tracking, setpoint ramping
- Use multiple analog inputs on one controller
- Use Voting in a PID loop
- Program a PID loop for complex processes such as nonlinear processes or processes with a variable process gain
- Program a three point PID loop
- Program a mid-range PID loop
- Program a split-range PID loop

**Participant profile**
This training is targeted to application engineers, commissioning and maintenance personnel and system integrators.

**Prerequisites**
Students shall have a basic knowledge of Control Builder M, equivalent to following T315C or T315F.

**Course type and methods**
This is an instructor led course with interactive classroom discussions and associated lab exercises. Approximately 50% of the course is hands-on lab activities. This course can also be done as a Virtual Classroom training, saving the cost of travel.

**Topics**
- Configure a simple PID Loop
- Create Process Simulation
- Auto-Tune PID Controller
- Configure PID Loop with extra functions
- Feed Forward
- Tracking
- Master Slave
- PID with Voting
- Overriding PID Loop
- Gain Scheduling
- Tuning First Order Dead Time
- Tuning a Complex Process
- Compensate Non-Linear Behavior
- Three point controller
- Mid-Range Controller
- Split Range Controller
- Case brought in by students (Optional)

**Course duration**
The duration is 4 days.
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Course outline

Day 1
- Course overview
- Simple PID Loop
- Programming Simulation
- Auto tune
- Master Slave Control - Program and Tune

Day 2
- First Order Dead Time Control - Program and Tune
- Instable Process Control - Program and Tune
- Tracking
- Using multiple inputs for a PID Control
- Use Voting

Day 3
- Non Linear Control - Program and Tune
- Non Linear Control - Program and Tune
- Three Point Control
- MidRange Control

Day 4
- Split Range Control
- Override Control
- Cases brought in by students (if time allows)
- Solve cases brought in by students