

Private Training

PID Loop Tuning & Advanced Process Control Techniques



Overview

Private training is the perfect option for organizations that need a cost-effective way to train eight or more employees all at once. Help your team become more productive by scheduling ControlSoft to train your team on location or virtually, at your convenience. Each course can be customized to include application-specific content if desired. Training will help employees:

- Increase operational efficiency with existing assets
- Maintain safe regulatory control environments
- Mitigate risk of unscheduled downtime
- Reduce operational costs and increase profitability
- Extend hardware asset lifespans
- Improve product consistency

Course Options

Choose from our modular courses to give your employees new skills or deepen specific skills with the flexibility to meet your company's needs. We offer the following training modules:

- PID Controller Tuning
- Advanced Process Control Techniques
- Model-based Control Techniques
- Power Gen & Boiler Tuning
- INTUNE PID Tuning Tools Software

Virtual
Interactive



OR



In-person
Interactive

ControlSoft

- 38 years in business (since 1985)
- Expert team of PhDs and advanced degree engineers, with 20-30 years field experience in plants worldwide
- Numerous patents and multiple industry awards for technology, service and growth over the past three decades



This is universal PID loop tuning and process control training. The skills gained will benefit your employees regardless of your control system. Our software is used for hands-on exercises in class, but this is not product training, except for the INTUNE PID Tuning Software module.*

Open Enrollment Training

If you are looking to train a smaller group of employees, consider our Open Enrollment Training courses that are offered virtually and in-person throughout the calendar year.

See controlsoftinc.com/training/ for our current schedule.

Course Modules

PID Controller Tuning (Length: 7.5 hours)

Prerequisite: None

Learn the fundamentals of PID control, its variations, and things that are important to know in evaluating the health and tuning of PID loops, as well as how to tune a PID controller.

Topics	Applications
<ol style="list-style-type: none">1. Understanding Process Modeling and Control2. Fundamentals of PID Control3. Control and Tuning Objectives4. Tuning Techniques and Practices5. Industrial PID Equation Types6. Adaptive Tuning and Advanced Topics	<ul style="list-style-type: none">• Temperature• Pressure• Flow• Level• Speed• Position• Composition• High-order Process

Advanced Process Control Techniques (Length: 7.5 hours)

Prerequisite: PID Controller Tuning

Learn the best practices and techniques for process control strategies beyond PID control, as well as design, tuning, and common implementation pitfalls.

Topics	Applications
<ol style="list-style-type: none">1. Enhanced PID Control: Anti-reset Windup, Tracking mode, Bumpless transfer2. Cascade Control3. Feedforward Control4. Split Range Control5. Gain Scheduling and Multiple PID6. Override Control	<ul style="list-style-type: none">• Controlling Non-linear Process• Reducing Impact of Disturbances• Speed• Position• Composition• High-order Process

Model-based Control Techniques (Length: 7.5 hours)

Prerequisite: PID Controller Tuning & APC Techniques

Learn about model-based control theory and practice, including the design, tuning, and evaluation of applications best suited for model-based control.

Topics	Applications
<ol style="list-style-type: none">1. Model Based Control Overview2. Smith Predictor3. Internal Model Control (IMC)4. Coordinated Control (CC)5. Modular Multivariable Control (MMC)6. Predictive Control	<ul style="list-style-type: none">• Long Deadtime Processes• Multi-Output Control• Control of Interacting Processes

Power Gen & Boiler Tuning (Length: 15 hours)

Prerequisite: PID Controller Tuning & APC Techniques

Learn about critical boiler control loops and control methods, as well as design, tuning, and common implementation pitfalls that often make proper boiler tuning so challenging.

Topics	Applications
<ol style="list-style-type: none">1. Boiler Control2. Load Demand Control3. Boiler-Following Mode4. Turbine-Following Mode5. Coordinated Control6. Main Boiler Control Loops7. Trim Control Principles and Uses	<ol style="list-style-type: none">8. Function Generators Characterization9. SH/RH Steam Temperature Control10. Feedwater Flow Control11. Drum Level Control12. Pollution Controls (NOx, SOx, Opacity)13. SCR Ammonia Injection / NOx Emission Control Tuning14. Combustion Control15. Fuel Flow Control16. Air Flow Control17. Excess O2 Control18. Furnace Pressure Control19. Unit Master (MW and Throttle Pressure) Control Processes

INTUNE Software (Length: 15 hours)

Prerequisite: INTUNE License

Learn how to use INTUNE software for tuning PID loops as well as cascaded loops and feedforward compensators.

Topics	Applications
<ol style="list-style-type: none">1. INTUNE Communications Setup2. General PID Training	<ol style="list-style-type: none">3. INTUNE Components4. Using INTUNE on Your System

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SOFTWARE



CUSTOM SOLUTIONS



TRAINING