



## Modern Loop Tuning



### Course 9032-3 CEU's: 2.1

This course is for those responsible for maintaining process control performance using instrumentation and control loop tuning.

#### Overview

**Modern Loop Tuning (MLT – Course 9032)** is a 3-day course intended for E & I Technicians and Process Control engineers. The course introduces participants to control loop troubleshooting and controller tuning. The non-oscillatory EnTech tuning techniques, based on Lambda concepts, are taught with a focus on minimizing process variability. Effectiveness is gained by the implementation of a tuning strategy that matches control element dynamics to process operating requirements. It contains formal lectures that are amply populated with process examples and supported with hands-on lab exercises.

Participants learn how to recognize acceptable/unacceptable control loop performance and to identify the most common source of problems. Fundamental tuning concepts, including the PID controller, process dynamics, valve motion characteristics (backlash and stiction), setpoint tracking and regulation, minimum variance, integrating processes and level control are reviewed and/or demonstrated using case study examples.

#### Prerequisites

Some experience with process instrumentation and control is helpful.

#### Topics

- **Process Dynamics** – Control Loops, Bump Tests, Process Responses, First Order, Gain, Time Constant, Deadtime, Filtering, Non-Linearities, Control Response, Valve Dynamics
- **PI Controller Tuning First Order Processes** – Automatic Control, PID Equations, Tuning Methods, Lambda Tuning, Filtering
- **Setpoint/Disturbance Responses** – Regulatory Control, Setpoint Tracking, Frequency Response, Cascade Control and Interactive Loops
- **Tuning Level Controllers for Load Recovery** – Integrating Processes, Tuning for Load Recovery, Setpoint Responses, Dampening
- **Hands-on labs** - using a high fidelity process simulator provide the student with an opportunity to exercise all the loop tuning concepts presented.

**Course Location:** Control Dynamics, Inc.  
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**Sponsored By:** Control Dynamics, Inc.

**To Enroll or for More Information:** **Connie Goodman** – **Phone:** (804) 858-5878  
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**Course Dates:** May 5 – 7, 2009

**Price:** \$1,975.00 – Purchase order or payment required at the time of enrollment. PO, checks & credit cards are acceptable

**Providing Training with the Latest in Process Control Methods & Technologies!**  
**Enroll As Soon As Possible – Seating Is Limited.**

