

## Process Control Training & Skills Development Workshops

Learn How To: Tune PID Controllers, Optimize Plant Performance

**OCTOBER 24 - 25, 2017 » ES&E APEX**

- Level 2:** Techniques for Applied Process Control (General)
- Location:** ES&E Apex | 1000 Classic Road, Apex, NC 27539
- Cost:** \$1,650.00
- Duration:** 2 days (16 hours) 8AM - 5PM
- Audience:** PLC/DCS Control System Technicians; Instrumentation Engineers; Process Engineers; Control Engineers; Plant Operators; and/or any plant staff who is responsible for maintaining critical process control investments
- Prerequisites:** Any plant staff responsible for regulatory control level performance. Basic control room experience whether as a technician, operator, or plant engineer is desired but not required.
- Materials:** LOOP-PRO TRAINER + Process Simulations

### Course Objective:

This workshop covers proven best-practices for diagnosing process dynamics and manually tuning PID controllers. The workshop is hands-on and includes case studies of industrial problems and solutions. Course participants will leave with skills to achieve immediate impact to production control through loop optimization and process control strategy.

**Earn Your Loop Tuning Certificate!**



### Supports All DCS/ PLC's

Rockwell	ABB
Emerson	Schneider
Honeywell	Siemens
Yokogawa	NovaTech
	Mitsubishi

### DAY ONE

#### Fundamentals of Process Dynamics

**Demonstration:** Modeling Process Dynamics

**Exercise:** Exploring Dynamics of Gravity-Drained Tanks

#### Proportional Control

**Demonstration:** Implementation of P-Only Controllers

**Exercise:** P-Only Control of Tank Level

#### Integral Action and PI Control

**Exercise:** Hazards of Tuning PI Controllers by Trial and Error

#### Formal Approach to Controller Design

**Exercise:** PI Control of a Heat Exchanger

#### Derivative Model and PID Control

**Demonstration:** Modeling Process Dynamics

**Exercise:** Exploring Dynamics of Gravity-Drained Tanks

#### PID Control and Derivative Filter

**Demonstration:** PID with Filter Control of a Heat Exchanger

**Exercise:** PID with Filter Control of a Multi-Tank Process

### DAY TWO

#### Systematic Approach to Real-World Processes

**Demonstration:** Simulation and Control of a Heat Exchanger

**Exercise:** Modeling and Simulating Control of a Single Loop Process

#### Cascade Control

**Demonstration:** Single Loop Control of a Jacketed Reactor

**Exercise:** Cascade Control of a Jacketed Reactor

#### Feed Forward Control

**Demonstration:** Feed Forward Control of an Ideal Process

**Exercise:** Feed Forward Control of a Jacketed Reactor

#### Dynamics of Non Self-Regulating Processes

**Demonstration:** Controlling a Non Self-Regulating (Integrating) Process

**Exercise:** Modeling and Simulating Control of a Pumped Tank Process

**Register Today!**

Space is limited. Call or email Susie at 336.574.4836 or srogers@ese-co.com