

Control Loop Foundation Web Site

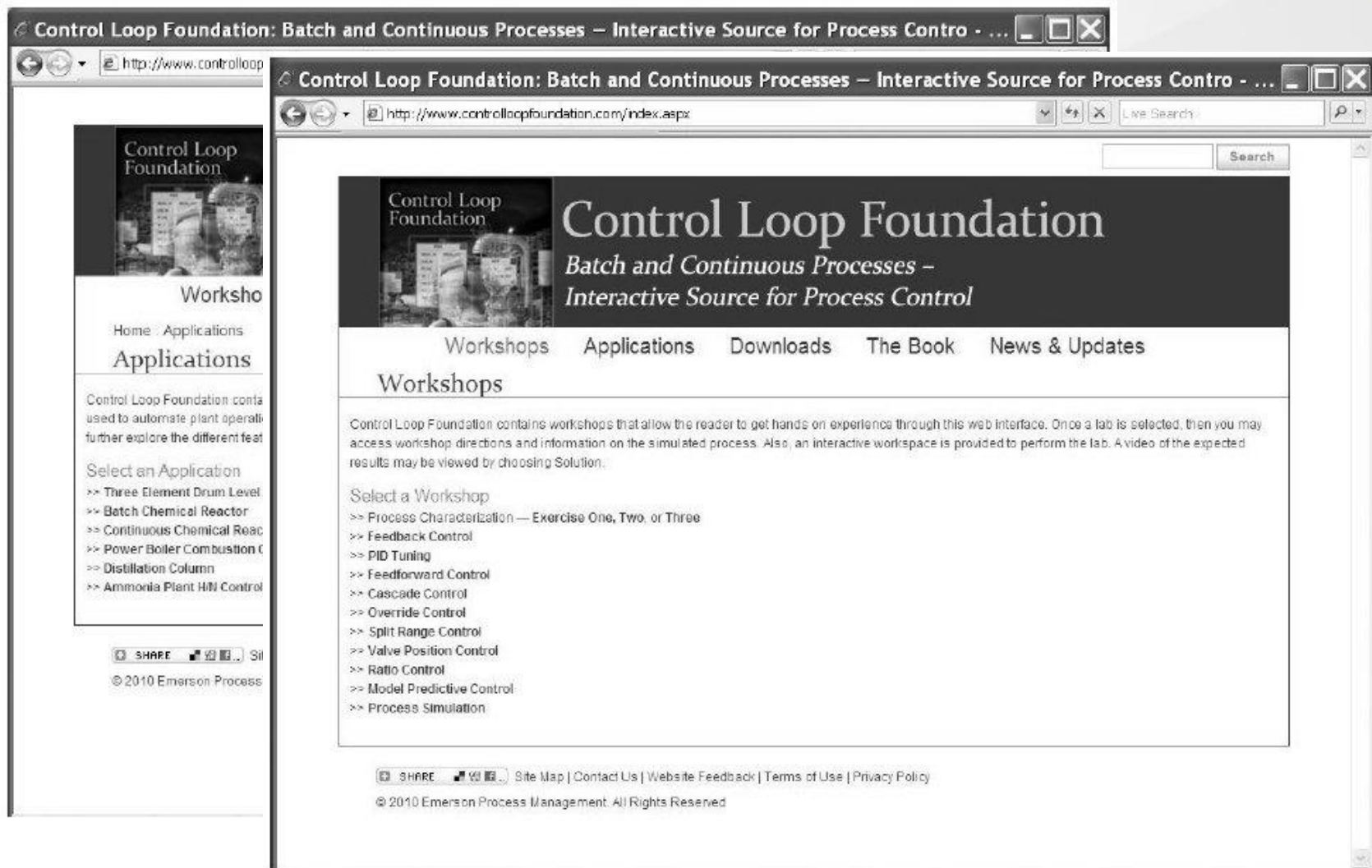


Figure A-1. Web Site Home Page

Exercise and Process Information

The image displays two screenshots of a web browser window showing the Control Loop Foundation website. The browser title is "Control Loop Foundation: Batch and Continuous Processes – Interactive Source for Process Control".

The left screenshot shows the "Feedback Control" page. The URL is <http://www.controlloopfoundation.com/feedback-control-process.aspx>. The page features a sidebar with a "Control Loop Foundation" logo and the text "Batch and Continuous Processes – Interactive Source for Process Control". The main content area has a navigation menu with "Workshops" and "Applications". Below the menu, there are tabs for "EXERCISE", "PROCESS", and "WORKSPACE". The "EXERCISE" tab is selected, showing a list of steps for a feedback control workshop. The steps are:

- Step 1. In the feedback control workspace, set the mode to observe the process response.
- Step 2. Set the PID mode to Auto and change the setpoint.
- Step 3. Introduce an unmeasured process disturbance block to return the temperature to its setpoint.
- Step 4. Reduce the PID GAIN by a factor of 2, then repeat changes.

The right screenshot shows the same page but with the "PROCESS" tab selected. The main content area displays a process diagram for a steam heater. The diagram includes a control loop with a Temperature Controller (TC 185) and a Temperature Valve (TV 185). The process is controlled by a Feedback Controller (FC). The temperature is measured by a Temperature Transmitter (TT 185). The process is labeled "50-200 DegF".

Figure A.

Figure A-4. Process – Feedback Control

Workspace –Dynamic Simulation/Control

The screenshot displays a web browser window with the URL <http://www.controlloopfoundation.com/feedback-control-workspace.aspx>. The page features a navigation menu with links for Workshops, Applications, Downloads, The Book, and News & Updates. The main content area is titled "Feedback Control" and includes a sub-menu with buttons for EXERCISE, PROCESS, WORKSPACE, CHART, and SOLUTION. The "WORKSPACE" button is currently selected. The central part of the page shows a detailed block diagram of a feedback control system. This diagram includes a disturbance input, a process block, a feedback loop, and a controller block. The process block is labeled "HEATER_PROCESS" and contains sub-blocks for "HEATER" and "MOVEMENT". The controller block is labeled "PID" and contains sub-blocks for "P", "I", and "D". The diagram is enclosed in a dashed box, indicating it is a simulation workspace. Below the diagram, there is a table with columns for "Parameter" and "On-line value". At the bottom of the page, there are links for SHARE, Site Map, Contact Us, Website Feedback, Terms of Use, and Privacy Policy, along with a copyright notice: "© 2010 Emerson Process Management. All Rights Reserved."

Figure A-5. Workspace – Feedback Control

Chart and Solution Selections

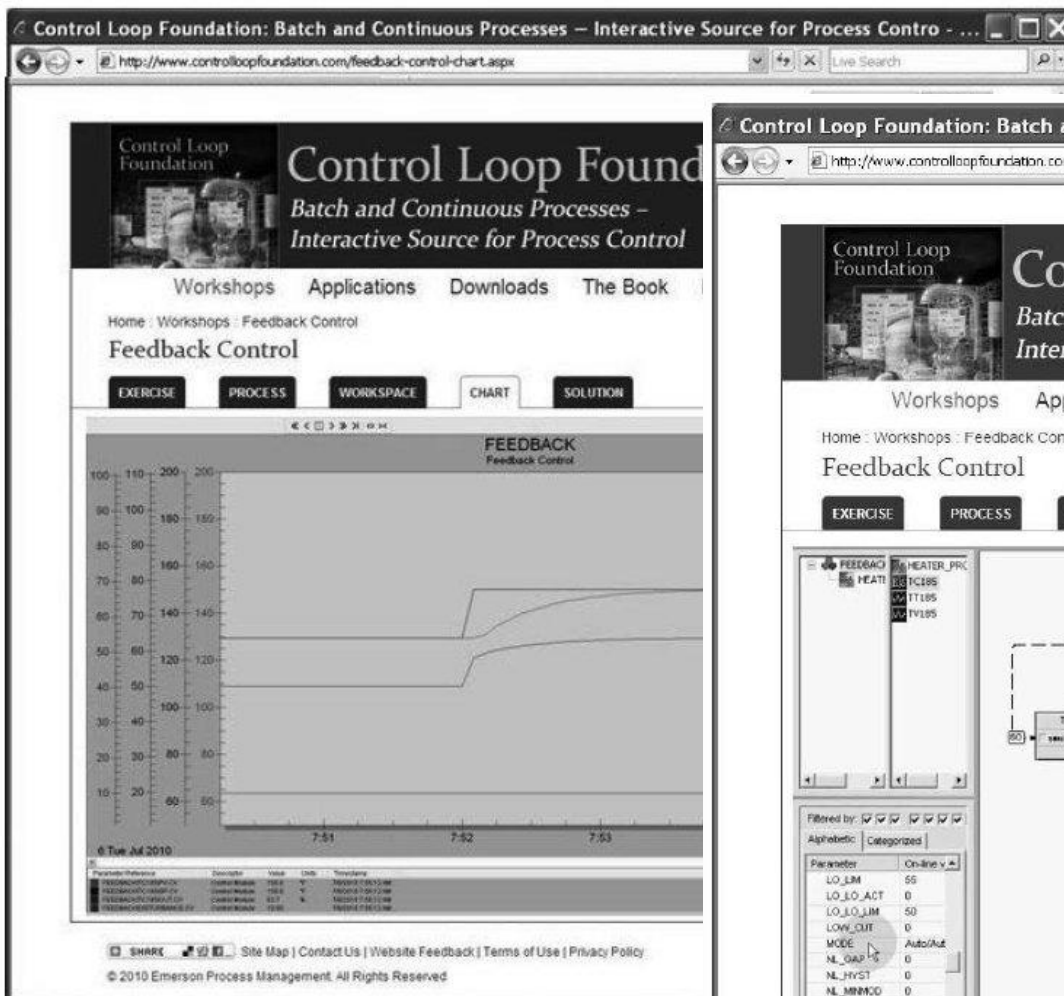


Figure A-9. Chart – Feedback Control

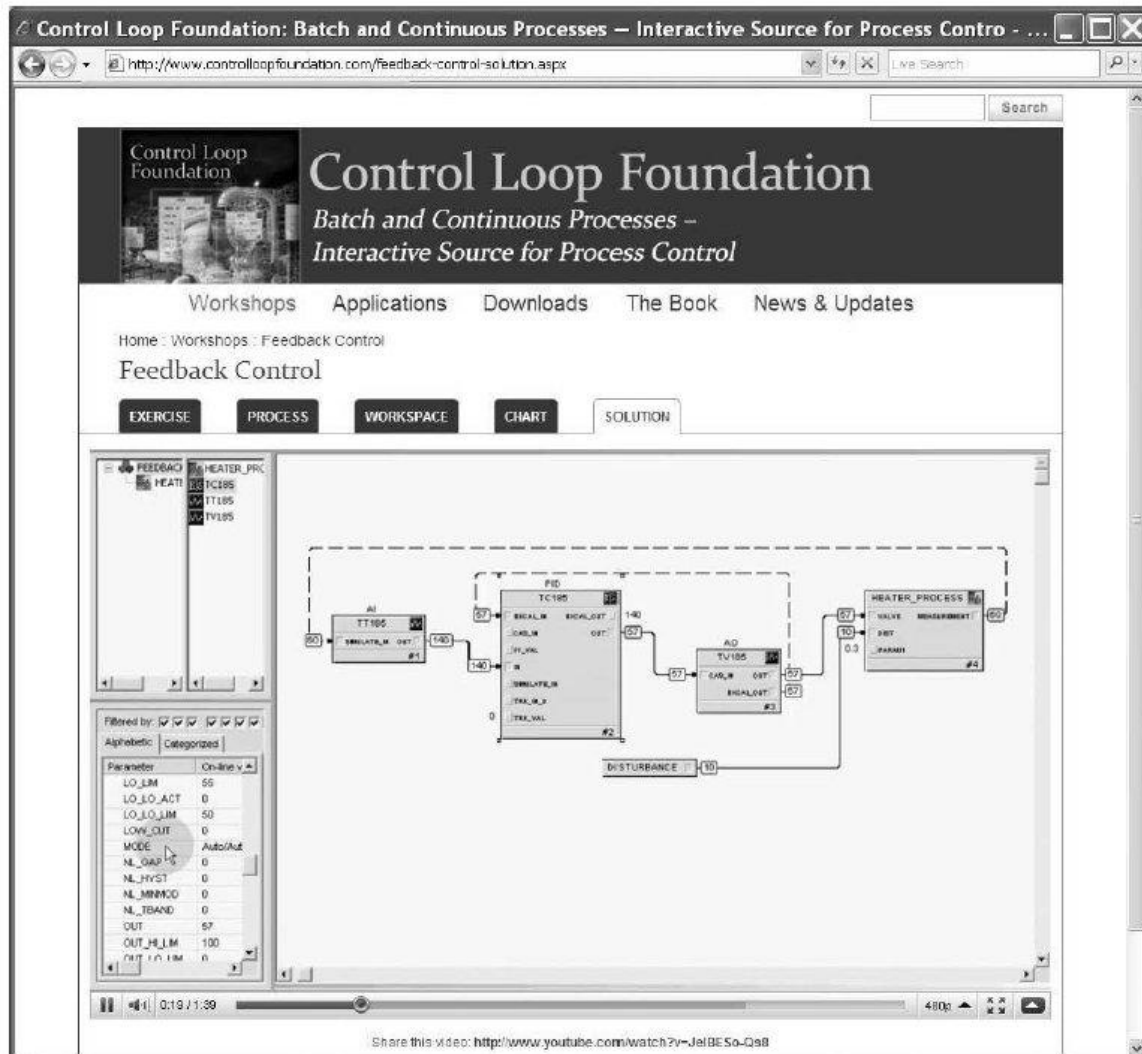


Figure A-10. Solution – Feedback Control

Summary

- Feedback on the book can be provide through the Control Loop Foundation website
- Questions?
- Drawing for books

How to Get More Information

■ Emerson Education Class

- **Control Loop Foundation, Course 9025 CEUs: 3.2**
- This course is for engineers, managers, technicians, and others that are new to process control or need a refresher course. This course includes the practical aspects of control design and process applications that course developers personally learned through years of hands on experience while designing and commissioning process control applications.

Overview

- This 4-1/2 day course covers the concepts and terminology that are needed to understand and work with control systems. Upon completion of this course the student will be able to effectively work with and commission single and multi-loop control strategies. Interactive workshops allow the student to apply what they learn in the class.

Prerequisites

- Windows experience.

■ Control Loop Foundation - ISA Book

- May be purchase through the ISA web site - <http://www.isa.org/>

■ Book Web Site

- Explore book workshops - <http://www.controlloopfoundation.com/>