

OMNI PROCESS SOLUTIONS



Process Optimization and Troubleshooting Techniques

Ways to Improve Productivity,
Quality and Reduce Costs

May 31 - June 3, 2009
St Louis, MO

In conjunction with PaperCon '09

COURSE TOPICS:

Process Variability
Process Dynamics
Tuning PID Controllers
Attenuating Disturbances
Troubleshooting Loop Problems
Impact of Process Design
Identifying Process Variability
Managing Process Variability

'This course is sponsored by TAPPI'

High process variability compromises the economic performance of continuous processes through off-quality product, higher raw material costs and reduced process efficiency. Minimizing process variability is a difficult, multi-disciplinary activity that extends from the process design engineer to the operator. Process design flaws, poor control loop performance and inadequate stock chest mixing are important factors that lead to high variability in key process variables. Moreover, there is often a lack of the troubleshooting skills required to identify and correct variability problems. This allows higher than acceptable variability to persist for an extended period compromising product quality and profitability.

COURSE DESCRIPTION

This four day course is intended to strengthen the student's ability to optimize process performance. The first half of the course focuses on improving control loop performance. The measurement of process dynamics and Lambda tuning are the key topics. The second half of the course focuses on time series analysis techniques to characterize variability, troubleshooting techniques, and management approaches to maintaining a low variability operation. Particular attention is paid to the upgrading of consistency control performance. Approximately 40% of the course is devoted to a computer-based lab that illustrates the main concepts.

INSTRUCTORS

Doug Nelson, P.Eng. has over 25 years of pulp and paper process control experience. He has authored papers on loop monitoring systems, paper machine dryer control, control valve selection and troubleshooting paper machine variability problems. **George Jablonsky, ASCT** has 20 years of industry experience in process control, instrumentation and optimization in the pulp and paper industry. He has held positions both in operations and maintenance management.

WHO SHOULD ATTEND

The course is primarily intended for process engineers, instrumentation engineers and operations management personnel who want to improve their ability to troubleshoot process control and variability problems. The course explores the implications of process equipment design and process variability and therefore would be beneficial for maintenance and design engineers.

COURSE LOCATION

The course is being held at TAPPI's PaperCon '09 conference facility. Attendees are encouraged to join PaperCon attendees for lunches and hospitality receptions in the trade fair. Attendees are responsible for arranging their own accommodations. The recommended hotel is the Renaissance St. Louis Grand & Suites Hotel. A block of discounted rooms has been reserved for Omni and PaperCon participants. Reserve online or call 1-314-621-9600 and mention that you're attending PaperCon.

REGISTRATION

Registration fee is \$2200 US for the 4-day course. TAPPI members will receive a 10% discount. Attendees need to register 3 weeks in advance to ensure space and materials will be available. Omni Process Solutions reserves the right to cancel the course based on a minimum number of registrants. The course is limited to 15 participants.

Day One

Lecture 1 **Process Variability Overview**
07:30 - 09:30

Lecture 2 **Process Control Basics**
09:30 - 11:00 Control Terminology
Control Block Diagram
Process Dynamics

Lab 0 **Simulator Introduction**
11:00 - 12:00

Lecture 3 **Process Dynamics**
1:00 - 2:00 Types of Responses, 1st Order Processes
Integrating Processes, Non-linearity's

Lab 1 **Process Dynamics**
3:00 - 4:30

Day Two

PaperCon **Reducing Variability in the Thin and Thick Stock Flow Loops**
8:00-10:00

Lecture 4 **Tuning the PID Controller**
10:00 - 12:00 PID controller Introduction
Lambda tuning procedures
PID controller capability

Lab 2/3 **Tuning 1st Order/Integrating Loops**
1:00 - 3:00

Lecture 5 **Tuning the PID Controller**
3:00 - 4:30 Tuning strategy development
Defining process objectives, interactive loops, cascaded loops

Lab 4 **Tuning Strategy Development**
4:30 - 5:30

Day Three

Lab 4 **Tuning Strategy Development (cont'd)**
7:30 - 8:30

Lecture 6 **Consistency Control**
8:30 - 10:30 Measurement/Control
Control Strategies
Impact of Stock Chest Mixing

Lecture 7 **Troubleshooting Control Loop Problems**
10:30 - 12:00 Identifying the problem source
Dealing with complex loops and strategies

Lab 5 **Troubleshooting Control Loop Problems**
1:00 - 5:00

Day Four

Lecture 9 **Identifying Process Variability**
07:30 - 10:00 Identifying variability pathways

Lecture 10 **Managing Process Variability**
10:00 - 12:00 Economic Benefits
Skill Requirements
Organizational Models

Lab 6 **Managing Process Variability**
1:00 - 3:30

Wrap-Up **Course will adjourn at 4:30 pm**

Lunch Breaks between 12:00 & 1:00 each day

ABOUT Omni Process Solutions / PaperCon '09

Your technical resource for improving process and control performance

Omni Process Solutions is a collaboration between Omni Continental and ProNamics Control Inc. We are based in Vancouver, BC. The company conducts process and control optimization surveys, prepares process simulations to establish best practices and provides a range of training courses related to process control optimization. Visit our web sites at www.omnicontinental.com and www.pronamicscontrol.com for more information about our services. PaperCon is TAPPI's most comprehensive conference of the year, addressing papermaking, coating, process control and management topics.

REGISTRATION FORM / CONTACT US: Fax to (604) 898-1378

Name: _____ Position: _____
 Company: _____ Email: _____
 Address: _____
 Phone: _____ Fax: _____
 Payment: Full Payment Enclosed Invoice my company
 Date: _____

By phone: Omni (604) 925-9300	By email: Amardon@omnicontinental.com	By fax: (604) 898-1378	By mail: Omni Continental PO Box 91098 West Vancouver, BC, Canada V7V3N3
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