



## Consistency Control Optimization Course

Your technical resource for improving Pulp and Paper process control performance

### Topics covered include:

- Sources of Consistency Variability
- Consistency Control Loop basics
- Consistency control loop performance targets
- Identifying consistency control problems
- Consistency control strategy options
- High Density Consistency Control
- Factors affecting Stock Chest Mixing
- Dry Stock Control
- Consistency Loop Survey procedures

Good stock consistency control is accepted as a cornerstone of a low variability operation. In spite of its importance, there are often many problems found with the design and operation of consistency loops. Common problems include inadequate mixing in stock chests, inappropriate sensor selection, poor dilution header pressure control, unnecessarily slow consistency controller tuning, poor consistency sensor calibration, poor management of consistency setpoints

This one-day course strengthens the attendee's ability to identify and troubleshoot consistency variability problems.

Approximately 30% of the course is devoted to a computer-based DCS-like process simulator, where the operator practices the concepts presented during the lectures.

### Course Fees...

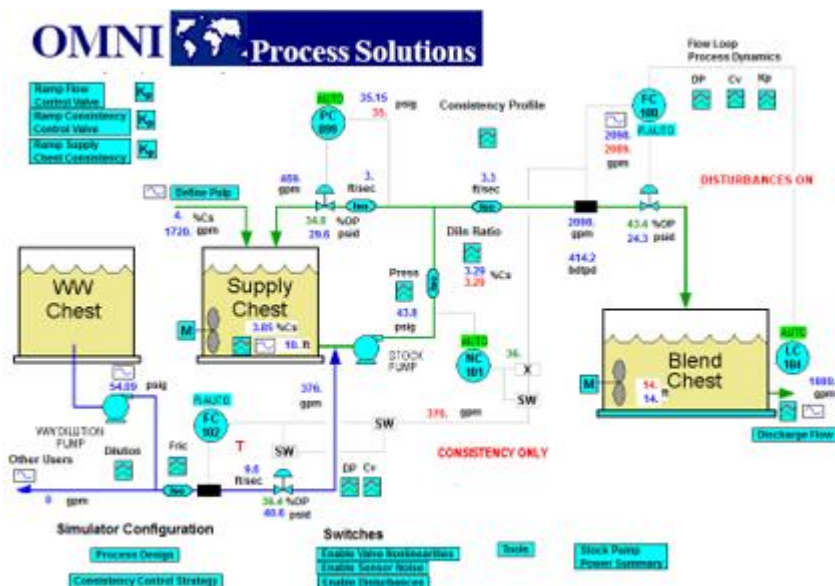
CDN per student \$800.00

USD per student \$700.00

(Canadian Taxes Included.)

Fees include a full set of course notes.

The course is limited to 8 participants to provide individual attention and allow our expert instructors to address specific attendee issues.



## Course Schedule

<b>Lecture 1</b> 08:00 – 8:30	<b>Consistency control overview</b> Impact of consistency variability on product quality and process efficiency Sources of consistency variability Consistency control and variability targets Common causes of poor consistency control
<b>Lecture 2</b> 8:30 – 10:00	<b>Consistency Control Design Overview</b> Chest agitation system Dilution delivery system Loop Components (Sensor, controller, dilution valve) Sampling and Calibration
<b>Lab 1</b> 10:00-11:00	<b>Introduction to Consistency Control Simulator</b> Navigating the simulator, loop components and control strategy options
<b>Lecture 3</b> 11:00 - 12:00	<b>Consistency Control Strategies</b> Consistency control loop performance targets Limitations of the feedback control loop Consistency to Dilution Flow Cascade strategy Cascade Ratio strategy
<b>Lunch Break</b>	
<b>Lab 2</b> 12:30 – 1:30	<b>Comparing consistency control strategies</b> Feedback, Cascade, Cascade ratio Identifying opportunities
<b>Lecture 4</b> 13:30 – 1400	<b>Investigating Stock Tank Mixing</b> Impact on consistency variability Mixing Test procedures / Improving Performance
<b>Lab 3 / Demo</b> 14:00 –14:30	<b>Stock Chest Mixing Performance</b> Identifying poor mixing, Impact on variability
<b>Lecture 5</b> 14:30 – 15:30	<b>High Density Consistency Control</b> Double Dilution control strategies HD Towers, Blow Tank, Deckers/Saveall
<b>Lecture 6</b> 15:30 – 16:30	<b>Troubleshooting Consistency Control Problems / Demo</b> Common consistency control / variability problems Analytical troubleshooting procedure
<b>Wrap-Up and Discussion</b> 4:30 – 5:00	

## About the Course ...

The objective of this course is to provide the attendee with the broad issues affecting consistency control and clear-cut directions for improvement.

Achieving low consistency variability requires good process design – not just of the control loop but the surrounding equipment such as stock chest agitation and dilution supply systems. The process engineer needs to design a control strategy capable of achieving the consistency variability targets. The controller tuning needs to be optimized to take advantage of the well designed process and control strategy.

## Who Should Attend...

This course is intended for process/instrumentation/control engineers and operations management who want to optimize consistency control performance. The course explores the implications of process design on control performance and is beneficial to maintenance and design engineers.

## Instructor, Doug Nelson

Doug has over 30 years of industrial process control experience. He has extensive experience in process control training of operators, E/I techs and process control engineers.

## About Omni Process Solutions

Omni Process Solutions. is based in Vancouver, BC. The company conducts process and control optimization surveys and provides a range of training courses related to process control optimization. Visit our web sites at [www.omniprocesssolutions.com](http://www.omniprocesssolutions.com) for more information.

## Course Location...

The course is held either at a conference facility or by video conference. Attendees are responsible for arranging their own accommodations.

**Accommodations...** For convenience, we recommend that registrants stay at the hotel course site.