

# 2010 Workshop Series:

**A user-friendly  
process simulation  
tool made even  
friendlier**



## **Instructors**

### **Ben Horwitz**

Pencilless Process Design  
(Basic, Advanced)

### **John E. Edwards**

P & I Design Ltd.  
(Dynamics)

### **Joel G. Reagan**

Process Engineering  
Associates, LLC  
(CHEMCAD Productivity)



## **Course Schedule**

Tuesday & Wednesday:  
8:00 AM - 5:00 PM

Thursday: 7:30 AM - Noon

Lunch: Noon - 1:00 PM

Course includes workshop  
manual, notepads, lunches,  
and refreshments



For more details,  
please call:

**1.800.CHEMCAD**

# **CHEMCAD User Training**

**For beginners through advanced users**

## **Basic Course**

January 19 - 21 ◆ Tampa, FL

April 20 - 22 ◆ Houston, TX

July 13 - 15 ◆ Boston, MA

September 21 - 23 ◆ Chicago, IL

November 2 - 4 ◆ Houston, TX

## **Advanced Course**

October 12 - 14 ◆ Houston, TX

## **Dynamics Course**

October 19 - 21 ◆ Houston, TX

## **CHEMCAD Productivity Course**

April 27 - 29 ◆ Houston, TX

Let us introduce you to new and  
practical ways to make CHEMCAD  
work for you and your company.



**Chemstations™**

# Course Descriptions

Most topics in each course are covered using real-world examples.

## Basic

- Overview of CHEMCAD functions
- Overview and navigation of the physical property database
- Adding a new component to the database
- Overview of thermodynamic options
- Building a flowsheet for design purposes
- Modeling an existing process
- Quantitative and qualitative use of simulation
- Using simulation for day-to-day tasks
- Using plant data in process flowsheets
- CHEMCAD for unsteady-state, transient, and static problems
- Simulation as an extension of your engineering thought process
- Modeling plant utilities (steam, process water, etc.)
- Coverage of recycle loops, distillation reactors, heat exchangers, controllers, CHEMCAD plots and reports, solid components, electrolytes, and component binary interaction parameters (BIPs)

### Course dates:

January 19 - 21 ♦ Tampa, FL

April 20 - 22 ♦ Houston, TX

July 13 - 15 ♦ Boston, MA

September 21 - 23 ♦ Chicago, IL

November 2 - 4 ♦ Houston, TX

## CHEMCAD Productivity

- Customization of CHEMCAD using Microsoft Excel® and Visual Basic for Applications® (VBA)
  - Using a worksheet as a front end for CHEMCAD
  - Customizing UnitOps and calculations
  - Simple data connection to an external workbook
- Examination of real equipment selection based on process performance
- Sizing of pipes, orifices, control valves, columns (packed and tray)
- Mass transfer calculation for sized packed columns
- Heat exchanger sizing using CC-THERM
- Two- and three-phase vessel sizing
- Nodes to model real hydraulics
- Special calculation methods to help simulations converge:
  - Nodes
  - Stream reference modules
  - Loop UnitOp
  - Controllers (feed-forward and feedback)
  - UnitOp sequence groups
- Use of the META UnitOp to create simulation subroutines

### Course dates:

April 27 - 29 ♦ Houston, TX

## Advanced

- Modeling entire existing processes
- Avoiding common pitfalls in simulation
- Quantitative and qualitative use of simulation
- Manipulating thermodynamics to fit plant data
- Dealing with “unruly” plant data
- Using plant data in process flowsheets
- Simulation as an extension of your engineering thought process
- Using a laboratory to verify and investigate thermodynamics
- Coverage of:
  - Recycle loops
  - Distillation (continuous and batch)
  - Advanced heat exchanger topics
  - Advanced controller topics
  - Finding and breaking azeotropes
  - Batch and unsteady-state processes
  - Batch-to-continuous processes
  - Advanced electrolyte topics

### Course dates:

October 12 - 14 ♦ Houston, TX

## Dynamics

- Overview of dynamic models in CC-DYNAMICS
- Batch processes
  - Basics of modeling batch processes
  - Building batch process flowsheets
  - Batch, semi-batch, and continuous vessels
  - Specifying a vessel and its associated equipment
  - Using dynamic controllers
  - Viewing, plotting, and using results
- Batch reactors
  - Regressing kinetic data for reactions
  - Batch and semi-batch/continuous tank reactors
  - Using a laboratory to verify and investigate kinetics
  - Using calorimeter data with ReACS
  - Modeling batch reactors with distillation columns
- Dynamic distillation
  - Basics of building dynamic distillation models
  - Moving from steady state to dynamics
  - Feed/process changes or disturbances
  - Start-up and shutdown of a column
  - Using PID controllers with distillation units

### Course dates:

October 19 - 21 ♦ Houston, TX



***Class size is limited, so register early!***

If the listed course dates are not convenient for you, please contact your sales representative at **1-800-CHEMCAD** and ask about in-house training that can be customized to fit your specific needs.

# Instructors

Our CHEMCAD expert instructors have decades of industry experience.

## BENJAMIN A. HORWITZ

### Pencilless Process Design

Mr. Horwitz received a B.S. in Chemical Engineering from the University of Pittsburgh and an MS in mathematics from Cleveland State University. After graduating in 1967, he spent one year with Standard Oil Company, two years in the Peace Corps and he worked for Ohio Medical Products as a plant engineer. He joined M.K. Ferguson in 1973. After being Manager of Process Engineering for 12 years, he resigned to start Pencilless Process Design, a consulting firm in Cleveland Heights, Ohio.

## JOHN E. EDWARDS

### P & I Design Ltd.

Mr. Edwards received a B.Sc (Hons) in Chemical Engineering from Glasgow and an M.Sc in Engineering Management from Northeastern University. He has over 40 years of industrial experience in process engineering and instrumentation, including time with Rohm & Hass and Foxboro. Since 1978, he has worked as a consulting engineer to the fine and specialty chemical and pharmaceutical industries.

## JOEL G. REAGAN

### Process Engineering Associates, LLC

Mr. Reagan received an M.S. in Chemical Engineering from Tennessee Technological University in 1985. He has 25 years of experience in the design, start-up, operation, and optimization of chemical processes. He uses CHEMCAD for both process design and optimization for various industries, including specialty chemicals, biofuels, and refining. His recent work includes the development of customized user-interface tools using CHEMCAD's Visual Basic capabilities.

## Registration

Please print clearly and return to: **Chemstations, Inc., 11490 Westheimer Rd., Ste. 900, Houston, TX 77077**, or fax to **713-978-7727**.

NAME \_\_\_\_\_ TITLE \_\_\_\_\_  
(as it should appear on completion certificate)

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MAILING ADDRESS \_\_\_\_\_ CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

E-MAIL ADDRESS \_\_\_\_\_

Basic Course:	✓ Workshop Attending	Cost for Each Workshop
	<input type="checkbox"/> January 19 - 21 • Tampa, FL	\$1,900 for one person
	<input type="checkbox"/> April 20 - 22 • Houston, TX	\$1,600/each for 2 - 4 people
	<input type="checkbox"/> July 13 - 15 • Boston, MA	\$1,300/each for 5 or more participants
	<input type="checkbox"/> September 21 - 23 • Chicago, IL	
	<input type="checkbox"/> November 2 - 4 • Houston, TX	

Advanced Course:	✓ Workshop Attending	
	<input type="checkbox"/> October 12 - 14 • Houston, TX	

Dynamics Course:	✓ Workshop Attending	
	<input type="checkbox"/> October 19 - 21 • Houston, TX	

CHEMCAD	
Productivity Course:	✓ Workshop Attending
	<input type="checkbox"/> April 27 - 29 • Houston, TX

### Payment Methods:

- Check (payable to Chemstations, Inc.)
- Purchase Order Number: \_\_\_\_\_
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Name as it appears on credit card: \_\_\_\_\_



Account Number: \_\_\_\_\_ Exp. date: \_\_\_\_\_ Security code: \_\_\_\_\_

(3 digits for MC/Visa, 4 digits for American Express)

Billing address, if different from above: \_\_\_\_\_

**Registration/Cancellations:** Payment must be received two weeks prior to the course date. Written cancellations received two weeks prior to the course date will be subject to an administrative charge of \$50. No refunds will be made for cancellations after this date or for nonattendance. Substitutions may be made at any time. Course may be cancelled/rescheduled if minimum enrollment is not reached (workshop fees will be refunded).