

ASEE Summer School Materials Now Available On a CD-ROM Set or from the CACHE Web Site

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The Chemical Engineering Division (CHED) of the American Society for Engineering Education (ASEE) held the 13th in a series of Chemical Engineering Summer Schools this past summer at the University of Colorado. This Summer School, which is unique among the various engineering disciplines, provides extensive educational resources to aid in the development of new faculty who have joined their departments with the last five years. The Summer School was staffed by established faculty, representatives from governmental agencies, and industrial participants. This past summer, some 160 young CHEG educators and about 50 Summer School faculty gathered in Boulder, Colorado for six days of plenary lectures, presentations, workshops, mentoring activities, poster presentations, and casual socializing among all participants.

For the first time, all of the educational materials and presentations have been collected together after the Summer School and organized on a two CD-ROM set that is now available. This set has been distributed to each of the CHEG departments in the US and to the Summer School participants. Limited copies of this CD-ROM set are also available for purchase from the CACHE Corporation for a minimal charge. These materials are also included on the CACHE Web Site through the cooperation of the ASEE Chemical Engineering Division, CACHE, and the University of Texas Chemical Engineering Department.

The Summer School web site contains many materials for direct classroom use, and thus it is protected and controlled for faculty access only. Please contact [Mike Cutlip](#) at the University of Connecticut to obtain the needed information to gain access to the Summer School web site.

Summer School Materials at a Glance

Plenary Lectures

Thoughts on the Evolution of Chemical Engineering Education - One MIT Perspective.
Robert A. Brown

Industrial Panel on *Industrial Needs from CHEG Graduates*

NSF Programs of Interest to ChE Faculty. Thomas W. Chapman

The Role of Representations in Problem Solving in Chemistry. George M. Bodner

Flagship Workshop: Effective Teaching for Engineering Professors – A One-Day Workshop
Richard M. Felder, Rebecca Brent, and Phillip Wankat

Poster Presentations by Attendees - Poster presentations were presented from the attendees in the following areas, and the best posters were selected in the following areas:

- Learning Styles, General Approaches & Outreach
- Strategies for Lecture Courses
- Computer-Based Strategies
- Strategies for Laboratory Courses

Workshops

- 1: Career Development
- 2: Computational Fluid Dynamics (CFD)
- 3: Integrating Instructional Technology in the Classroom
- 4: Enhancing and Advancing Student Learning
- 5: Process Control Simulation using Control Station and Process Control Modules (MATLAB)
- 6: Molecular Modeling
- 7: Bioengineering
- 8: Green Chemical Engineering
- 9: Cellular Engineering
- 10: Teaching Fluid Flow and Heat Transfer through Visualization
- 11: Incorporating Communication Skills
- 12: Integration of Design Software into the ChE Curriculum
- 13: Syllabi for Core Courses
- 14: Ethics for Engineers - the Engineer's Toolchest Course and Engineered Biomaterials
- 15: Designing Challenge-Based Learning Modules
- 16: Mathematical Software Packages
- 17: Novel Laboratory Experiments
- 18: Integrating Computing across the Curriculum via Spreadsheets
- 19: Process Safety
- 20: Teaching Troubleshooting

Of Special Interest to CACHE Newsletter Readers

While the Summer School materials cover a wide of areas in Chemical Engineering, newsletter readers may be particularly interested in the following materials:

Workshop 2: Computational Fluid Dynamics (CFD)

CFD In Chemical Engineering Education. Jennifer Sinclair Curtis (CACHE Trustee)

Computational Fluid Dynamics Framework for Undergraduate Education. Richard LaRoche (CACHE Trustee)

Instructional Modules for FlowLab - a new educational software product from Fluent which has educational modules available and other in preparation. A trial semester of use is currently available:

Cylinder in Cross Flow

Sudden Pipe Expansion

Orifice Meter

Incompressible Viscous Flow through Pipes

Convective Heat Transfer

Workshop 3: Integrating Instructional Technology in the Classroom

Integrating Instructional Technology in the Classroom. Thomas F. Edgar (CACHE Trustee)

Asynchronous Learning of Chemical Reaction Engineering. H. S. Fogler (CACHE Trustee)

Workshop 5: Process Control Simulation using Control Station and Process Control Modules (MATLAB)

Control Station. Douglas J. Cooper (materials and an examination copy are available)

Process Control Modules. Francis J. Doyle (CACHE Trustee), Edward P. Gatzke, and Robert S. Parker

Workshop 6: Molecular Modeling

Molecular Simulations. James F. Ely

Computational Quantum Chemistry. Phillip R. Westmoreland (CACHE Trustee)

Workshop 12: Integration of Design Software into the ChE Curriculum

Simulators for Design Across the Curriculum. Daniel R. Lewin and Warren D. Seider (CACHE Trustee)

Tissue Plasminogen Activator Process. Warren D. Seider

Problem Solutions for HYSIS and ASPEN PLUS. - Numerous example files for instructional use.

Workshop 16: Mathematical Software Packages

General Workshop Materials. Mordechai Shacham and Michael B. Cutlip (CACHE Trustee)

Twelve Demonstration Problems in Numerical Analysis solved by POLYMATH, MATLAB and EXCEL. (Problem statements and detailed solutions)

Twelve Assignment Problems in Numerical Analysis (Problem statements and detailed solutions)

Workshop 18: Integrating Computing across the Curriculum via Spreadsheets

Workshop Problem Statements and Solution Files. David Clough and Brice Carnahan (CACHE Trustee)

Collection of Spreadsheet Notes - David Clough has kindly made available his extensive slides and notes on *Spreadsheet Basics, Engineering Formulas, and Problem Solving Scenarios* available for academic use.

Clough Spreadsheets - A collection of 25 spreadsheets in most areas of CHEG.

Michigan Spreadsheets

Material and Energy Balances - 10 spreadsheets

Separation Processes - 15 spreadsheets

Thermodynamics - 3 spreadsheets

Summary

There is a wealth of materials available to CHEG faculty from the ASEE Chemical Engineering Summer held last summer. The above listing is only representative of the computing-orientated workshops. These materials have been compiled on a CD-ROM set that was mailed to each academic department in the US in early November by CACHE as a public service. The set of two CD-ROM's can also be ordered from the CACHE office or accessed from the CACHE web site.

Contact the CACHE Office if you wish to purchase the CD set: cache@uts.cc.utexas.edu

Contact Mike Cutlip at the University of Connecticut for details on accessing the protected CHEG Summer School web site: Michael.Cutlip@Uconn.Edu