Anecdote

After the ASEE Summer School (2002), Prof. H. Scott Fogler (Michigan) approached us.

“Many of us are being asked to teach design for the first time. We need advice, help, in getting started. Could you present a workshop for ChE faculty?”

We approached Chris Floudas and Rakesh Agrawal with the possibility of holding the workshop in connection with the FOCAPD Conference – and received their enthusiastic encouragement to proceed.
Objectives

Provide recommendations and teaching materials for instructors with little or no experience in teaching design – as well as for instructors with considerable experience.

Make everyone aware of the best resources available for teaching design from various sources.

Encourage participants to share their experiences in teaching design – leave time for comments, discussion.

Objectives – Cont’d.

Focus on newer areas – especially product design

Emphasize materials with which we have experience in the classroom

Newer, less developed, ideas will be introduced during our talk on Monday evening.
**Important Premises**

Design courses differ significantly – depending on

- materials covered in previous courses
- time available – 1 or 2 semesters

Nearly all courses feature an open-ended design project.

Instructors must balance lectures and homework assignments with work on the design project.

Informal assistance must be provided as students tackle the design project – often provided by adjunct faculty from industry or “industrial consultants”.

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**Important Premises – Cont’d.**

Students need to learn to use diverse sources of data, text materials, computer software, etc.

It is uncommon to cover a design textbook from cover to cover.

Often design information (heuristics) disagree.

Judgment and advice are important for inexperienced students.
Important Premises – Cont’d.

Instructors gain considerable assistance from web sites:

Associated with textbooks – often contain “solution manuals”, POWER POINT slides for lectures and recitations, software, design problem statements, etc.

By other faculty (see www.cache.org) - often contain course syllabi, teaching materials, design problems and solutions, software, etc.

Schedule – see printed copy

8:30 – 9:00 a.m. – Introduction, Design Process – WDS
9:00 – 9:30 a.m. – Molecular Structure Design – WDS
9:30 – 9:45 a.m. – Coffee
9:45 – 10:15 a.m. – Batch Process Synthesis – WDS
10:15 – 12:00 p.m. – Role of Process Simulators – DRL
12:00 – 1:00 p.m. - Lunch (on our own)
Schedule – Cont’d.

1:00 – 1:30 p.m. – Heuristics for Process Synthesis – DRL
1:30 – 2:00 p.m. – Equipment Sizing and Cost Estimation – WDS
2:00 – 2:45 p.m. – Profitability Analysis – WDS, Holger Nickisch
2:45 – 3:00 p.m. – Soft Drink Break
3:00 – 4:00 p.m. – Product Design and Manufacturing – DRL
4:00 – 4:30 p.m. – Interaction of Process Design and Control - DRL