
Frontiers in Chemical Engineering Education

New Directions and Opportunities – Creating the Future

CCR/NSF Discipline Wide Curriculum
Workshops



The Path Forward

Summary

- Excellent interaction and input from industry
- Excellent input from academics on content for molecular transformation, multiscale, and systems organizing themes
 - Most “pages per day” of any workshop!
- Key Findings
 - Industry is excited and supportive of this effort and wants to stay involved
 - Skills and attributes are equal in importance to content with respect to creating the “whole” chemical engineer
 - Reaffirmed that there is key content from the existing curriculum that must be included in a new curriculum
 - The concept of “spiral education” was reconfirmed as a basic principle for effectively educating chemical engineers

Path Forward

- Executive summary (July 1)
 - One page summary to industry attendees to use to solicit broader input from within their organizations
 - Case for change
 - Solicitation of “success stories”, societal impacts and “cool work” that chemical engineers do
- Tools for engaging broader chemical engineering community in the case for change
 - Written
 - Self-study
 - Presentation materials for group discussion
 - Target – November AIChE

Path Forward

- Curriculum development
 - Content for three organizing principles (August 2005)
 - topics vs. time with rationale for inclusion or exclusion
 - Map of goals of skills and attributes on curriculum
 - Illustration of teaching strategy (spiral education)
 - Identification of key needs for
 - Examples from industry (to be collated and sent to industry participants by mid-August)
 - Laboratory experiences (to be collated and sent to lab team by mid-August)
 - Meeting on interactions between workstreams (mid-August)
 - Gaps: Are key ideas and topics covered somewhere?
 - Deliverables: Composite picture of curriculum highlighting interactions
 - Forward product to first year team: key concepts, skills and attributes to be introduced in first year

Path Forward

- Lab team
 - Meeting on: (September)
 - lab types and opportunities
 - Potential opportunities for stated needs from curriculum teams
- First Year team
 - Synthesize a packet of ideas for first year experiences: examples from industry, concepts to be illustrated, goals for skills and attributes
 - for Workshop #5 (October)
 - For broad distribution at AIChE (November)
 - Based on input from workstream teams

Path Forward

- Workshop #5 (October, 2005)
 - Location – Hawaii? San Francisco? San Diego?
 - Session 1: review of materials for engaging broader community
 - Session 2: review of content development for individual workstreams and first year experience
 - Goal placement and topic selection and placement
 - Session 3: review of composite picture of curriculum including interactions
 - Session 4: Evaluation of opportunities for Pedagogy and learning strategy
 - Includes active illustrations of “best practices”
 - Session 5: Poster Session: examples/case studies from industry and potential lab experiments
 - Session 6: Establishment of Goals and start of business case and management structure

Path Forward

- Review at AIChE
- Management Planning Session (late November)
- Curriculum development Part 2
 - Inclusion of pedagogy
 - What needs to be developed, by whom, with what granularity