On Creating A Multidisciplinary Curricular Paradigm

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NC State University
Presentation Overview

- Funding
- Other Participants
- Project Objectives
- Pilot Semester – Spring 2001
- Recent Developments
Funding
National Science Foundation
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Creating Multidisciplinary Curricular Paradigms:
Bioprocessing & Chemical Engineering

NC State University
Other Participants

- Dr. Lisa Bullard, Chemical Engineering
- Dr. Chris Daubert, Food Science
- Drs. Deanna Dannels & Chris Anson,
- Ms. Amanda Granrud,
  Campus Writing & Speaking Program
- Drs. Saundra Williams & Paula Berardinelli,
  Assessment
Project Goals & Objectives

- Transition to Work Place Environment
  - Multidisciplinary Design Experience
  - Integrate Teaming, Writing, Speaking (TWS)
  - Incorporate TWS Concepts into CHE Bioprocessing Option
- Disseminate Model & Information
Spring 2001
Multidisciplinary Design Projects

1. Fermentation Manufacturing Execution System (CHE, CSC)
2. Transgenic Protein Purification (CHE, FS)
3. Conceptual Engineering Design for Retrofit of an Existing Biological Facility to Produce Antigenic Co-Proteins (CHE, IE, ECON)
4. Supervisory Control System for Research Fermentation (CHE, CSC)
Spring 2001
TWS Module

- Team Training
  - Stages & Roles
  - Meetings: Minutes & Agendas
  - Individual Accountability: Logs & Peer Evaluations

- Writing & Speaking
  - Phased Documents & Presentations
  - Feedback
  - Collaborative Revision & Practice

- Student Reflections

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Spring 2001 Assessment

- Pre- & Post-Course Questionnaires: Student Attitudes & Experiences
- Focus Groups
- Course Evaluations
- Comparison of Student Portfolios: Documents & Presentations

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Spring 2001
Lessons Learned

- Common Meeting Times
- Faculty Role Definition
- Resource Intensive
- Need for Teaming/Writing/Speaking Integration
Recent Developments

- Integrated TWS Module
- TWS Introduced into Junior Lab Course
- Project Web Site
<table>
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<th>Course</th>
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<th>Spring 2002</th>
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Project Web Site: Home Page Text

Chemical Engineering
National Science Foundation Grant

Home
Learn About the NSF Project
Revise a Curriculum
Revise a Course
Review Assessment Tools
Review Results of NCSU Project

Summary Blurb
Why Are You Here?
Why Are You Here?

Chemical Engineering
National Science Foundation Grant

I (or my research team) would like to learn about the NSF project, either because it might inform my research or because I’m interested in proposing or exploring a similar project at my own institution.

Continues With Summaries & Associated Links
Learn About the NSF Project

Chemical Engineering
National Science Foundation Grant

About the NSF Project

Project Proposal
NSF Team Plan
Team Meetings
Team Process
Revise A Course

- Design Course
  - Learning Goals
  - PowerPoint Modules
  - Syllabi
  - Reflection
  - Assignments
  - Annotated Papers
  - Sample Presentations
- Lab Course
  - Same List of Links!
Revise A Curriculum

- Learning Goals for Courses
  - Chemical Engineering
  - Food Science
  - Computer Science
- Faculty Training & Support Materials
- Protocol for Cumulative Instruction Between Courses
  - Within Chemical Engineering
  - Between Chemical Engineering & Other Disciplines
Conclusion

- Development of Instructional Materials
- Initiation into Junior Courses
- Integrated TWS Teaching Module
- Evaluation
- Publications & Conferences

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