An Integrated Education for ABET 2000:
Experiences from a Small University

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ABET 2000

One criteria perspective:
- Define purpose and mission of program
- Explain & justify approach to curriculum
- Measure and demonstrate achievement
Overview of Ambrose Institute of Industrial Engineering

● SAU’s mission
  • Value of the individual
  • Liberal arts (depth and breadth required)

● IE is only engineering program, it is located in College of Business
Overview (continued)

- **AIIE Mission**
  - **What**
    » Develop Industrial Engineers who possess the modern technical knowledge and practical leadership skills to provide continuous improvement in their employer’s processes and products.
  - **Principle**
    » Every student is provided strong encouragement and guidance as they build their capability for the application of knowledge to the improvement of human existence.
Overview (continued)

- Liberal arts needed to assure value in technology implementations
- Math & Physics provide support courses (OR and Eng. Fundamentals)
- 132 Hours Required
  - IE Major - 54 hours
  - Math., Phys., Chem. - 24 hours
  - Engineering Fundamentals - 17 hours
  - Liberal Arts - 37 hours
Curriculum Principles

- Philosophy: Whole must be greater than sum of parts
- Senior project team experience required
- Internship required
- Integrate course contents and experiences to achieve overall objectives
- Writing across the curriculum utilized to assure good communication skills
- Practice continuous improvement of courses
- Use Advisory Board
Examples of Principles

- **Liberal Arts Components**
  - 37 hours required
  - Electives are here, 21 hours
  - Depth in theology and philosophy required

- **Integration**
  - Introducing topics IE290 Micro Apps
    » Introduction to computers
    » Introduction to IE profession
    » Introduction to technical writing
      - One winner of APICS International Student Paper competition
Examples (cont’d)

- **Writing Experience**
  - Writing guide introduced in IE290
  - Technical writing class required (English department)
  - Two writing intensive courses required in IE
    » IE290 - Intro to Microcomputer
    » IE351 - IE Design Lab
  - IE courses with significant writing component:
    » IE375 - CIM
    » IE490 - Senior Project
Examples (cont’d)

- Engineering Graphics
  - IE110 - Engineering Language/Graphics
  - IE375 - CIM

plus

- IE295 - Material & Processes
- IE304 - Intro to Design for IE’s
- IE490 - Senior Project
Examples (cont’d)

Design Experience

- IE110 - Engineering Language/Graphics
- IE304 - Intro to Design for IE’s
- IE340 - Ergonomics
- IE375 - CIM
- IE415 - Systems Integration
- IE490 - Senior Project
Examples (Cont’d)

Continuous Improvements

• Easy communication and content adjustments among professors
  » IE110 & IE375

• Some faculty funds available for course improvement

• External grants (not research)
  » Faculty development
  » Title III
Program Operation and Evaluation

- Share all this perspective with students, faculty, and others
- Set “do as we do” example
- Use student evaluations feedback
- Use survey info from graduates
- Continued contact with graduates
- Sharing of graduate’s experiences with current students
Hypotheses:

We Are Educating Engineers for the Future!

We are Positioned for ABET 2000!