



Cornell University  
College of Engineering

## Strategic Planning Undergraduate Education

Charles Seyler  
Associate Dean, Undergraduate Programs

Betsy East  
Assistant Dean, Student Services



Cornell University  
College of Engineering

## Introduction & Assumptions

- Continue to recruit and educate talented and diverse student body
- Emphasis on fundamental engineering and technical expertise and analytical skills
- Students will continue to be leaders in industry and academia
- Need to prepare students to solve complex global problems



Cornell University  
College of Engineering

## Three Key Recommendations

- Increase flexibility of curriculum and student experience
- Enhance quality of teaching through innovative methods and technologies
- Expand programs to enhance leadership & enabling skills



Cornell University  
College of Engineering

## Increase Flexibility

- Maximize value students gain from broad education where technical knowledge is embedded
  - Increase flexibility of curriculum
    - Encourage Study Abroad or other intercultural experiences
    - Increase ability to take courses outside the college
    - **Minors in other colleges**
  - Enhance Independent Major
    - Reflect interest areas of business, pre-med, entrepreneurship



Cornell University  
College of Engineering

## Challenges to Increasing Flexibility

- Tensions exist within faculty
  - Core (depth) vs breadth
  - Principles vs applications
  - Technical depth vs enabling skills



Cornell University  
College of Engineering

## Resources Needed – Increase Flexibility

- Encouragement (bully pulpit) from Senior Leadership at University and College
- Data from student surveys confirming student perception of inflexibility
- Assistance/support from corporate leaders



Cornell University  
College of Engineering

## Enhance Quality of Teaching

- Students learning styles have changed – mismatch with faculty teaching styles
- Expand resources for improving faculty teaching *(great start with TEI – gift from two key ECC members)*
  - Increase College Teaching Excellence Institute staff
    - Director in high demand, needs assistance
    - Increase faculty awareness of pedagogical methods
    - Assistance in re-designing courses
    - Provide means for faculty to share best practices
- Integrate real-world experiences into UG program



Cornell University  
College of Engineering

## Enhance Quality of Instructional Facilities

- Continue to modernize teaching facilities *(great start with gift from ECC members)*
  - Enhance classroom presentation media and equipment
    - Clickers
    - Projection systems (documents and objects)
    - Touch screen computers
  - Transition classrooms to accommodate small group and active-learning
  - Work with faculty to enhance their knowledge of new methods in technical teaching



Cornell University  
College of Engineering

## Challenges to Enhancing Teaching/Facilities

- Convincing faculty there are better ways to teach
- Adequate TA training and resources
- Not clear what the best methods are for specific courses
- Reliability of equipment/support staff



Cornell University  
College of Engineering

## Resources Needed - Enhance Teaching

- Generous gift from ECC Council members to improve classrooms is greatly appreciated and well spent!
- Space suitable for conversion to teaching
- Generous funds to support TEI from two key ECC members has already made a significant difference!
- Kathy Dimiduk needs assistance – she is spread too thin!
- Concern about the long-term funding of the program



Cornell University  
College of Engineering

## Leadership/Enabling Skills

- Develop and support programs to foster leadership and team management skills
  - Project management
  - Communication
  - Budget and finance
  - Professional ethics
  - Building inclusive teams
  - Creating a vision, etc.
- Workshops, short courses
- Integrate these skills into technical courses
  - Make it easy for faculty
- Leverage/collaborate with other colleges to increase reach



Cornell University  
College of Engineering

## Challenges – Leadership Program

- Director and staff to lead the initiative
- Advocating importance to get faculty buy in
- Integrating into courses while maintaining rigor of technical content
- Coordination with other on-campus programs



Cornell University  
College of Engineering

## Resources Needed – Leadership Program

- Generous gift to start Engineering Leadership Program!
- In process of advertising for Director
- Alumni help in stressing importance of these skills to Faculty (not just Deans!)
- Data and input from corporate executives and employers
- Volunteers to participate in program
  - in-class presentations

## Summary

- Key focus areas for next two years are
  - Improving student flexibility in choosing courses obtaining international experience
  - Enhancing instruction through adoption of new teaching methods and utilization of facilitating equipment
  - Programs to develop leadership and enabling skills



Cornell University  
College of Engineering

# Questions/Comments