Learning from the Past to Develop Future Engineering Education Innovations

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• How do you define educational innovations in engineering education?

• How might the engineering community expand the definition of educational innovation to include more than teaching?

• What roles might Deans play in encouraging the development and dissemination of new instructional approaches in engineering and in rewarding engineering faculty for educational innovations?
Engineering Education Innovation Center (EEIC)

1st Year Engineering
Multidisciplinary Capstone Design
Engineering Graphics

Department of Engineering Education (est. 2015)

Enhanced EEIC
Innovative Graduate Program
Game Changing Research
Groundbreaking Collaborations
• Link engineering education practice and research
• Support and recognize education innovations
• Prepare future faculty
• Promote learning through entrepreneurship
• Integrate curriculum
• Educate global engineer
• Develop leaders
• Promote learning through service
• Enhance faculty experience

How can we translate policy recommendations to practice?
Engineering Education Landscape

• Narrow missions
• Minimal ties to engineering disciplines
• Most graduates work in academia
• Limited career trajectories beyond higher education
• Research silos
• No cohesive research themes across national engineering education programs
• Informal branding of departments and programs

How do you create a new engineering education department informed by the past and focused on educational innovation?
• What are the three most important aspects of the unit that we should preserve? Why?
• What are the three things that we need to change? Why?
• What do you most hope that I do?
• What are you most concerned that I might do?
• What advice do you have for me?
• What are your professional dreams? How can I help you to achieve those dreams?
• Is there anything else that you would like to discuss or ask me?
Our Opportunities for Innovation

• Expansion of engineering education research to new methodologies and to expanded contexts (i.e., outside of the classrooms)
• Creation of programs that do not look like current engineering education programs
• Recruitment of graduate students with profiles that differ from students in current engineering education programs
• Preparation of engineering education graduate students for careers at community colleges, in the K-12 sector, as entrepreneurs, for careers in government, in for-profit companies, and outside of research universities
• Drawing upon the benefits of urban cultures and unique local and regional partnerships
• Recruitment that intentionally targets diverse faculty, staff, and students
• Partnership with new stakeholders to create new educational tracks and careers for graduate students
• Conducting higher education work in ways that include all departmental stakeholders (e.g., first-year lecturers AND tenure-track researchers)
For Further Consideration

• What educational innovations align with cultural norms in your unit(s)?
• What educational innovations can make you a game changer?
• How do you attract the right people (i.e., faculty, collaborators) to your unit(s)?
• What resources do you need to achieve your vision for educational innovation?
• How will you communicate your vision?
• How will you recognize and reward people who implement these innovations?
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