

Summer 2024 Strategic Initiative: Design

Contributors

Primary: Stu Thompson (ECE), M. Laura Beninati (MECH), Alan Cheville (ECE), Donna Ebenstein (BME), Kevin Gilmore (CEE), Charles Kim (IDSD / MECH), Deborah Sills (CEE), Brandon Vogel (IDSD/ CHEG), Kat Wakabayashi (IDSD / CHEG)

Additional: Eric Kennedy (BME), Jonathan Torres (MECH), Ryan Snyder (CHEG)

Questions:

1. What do we do? Defining design and exploring our existing design experiences.
 - a. Definitions vary, experiences vary, structures vary, level of interest of faculty varies BUT **it is something that has a space in every dept in some fashion**
2. What do others do? Asking those in our networks about design experiences at their institutions and reviewing published work from the capstonedesigncommunity.org site.
 - a. This varies a lot as well. **General trend: a growing interest in expanding from just senior design.**
3. What should we do next? Identify new opportunities as well as areas where current work should be changed or sunsetted.
 - a. Lots of options here.

Overall Recommendation:

Double down on design as a signature aspect of the Bucknell engineering experience.

Recommendations to Explore (and ideas for possible initiative)

1. Hire Professors of the Practice to Support Interdisciplinary Design
2. Engineering Design Focus and Rebranding
 - a. Branding the COE with a focus on Engineering Design
 - b. Create a college group focused on Engineering Design
3. Curriculum Development and Interdisciplinary Integration
 - a. Design Courses for Non-Majors
 - b. ENGR 200: Interdisciplinary Sophomore Design (possibly with SBDC)
 - c. Minor/Concentration in Engineering Design
 - d. Ethics in Design
 - e. Calling the Question on “Interdisciplinarity” of Design
4. Partnerships and Project Sourcing
 - a. Explore Project Sourcing Options
 - b. Relationship Building with Community and Industry Partners
 - c. Establish Industry Advisory Board

Possible Metrics of Evaluation

1. An increase in the number of engineering education publications (papers, workshops, etc.) related to design, over the next 3 years.
2. An increase in the number of students connecting with the various design opportunities that fall outside of their requirements, especially those from outside the college.
3. The connection of a university requirement with engineering - currently, it is challenging to offer an engineering course that connects with a CASCC requirement.
4. An increase in the number of engagement opportunities with engineering design. For example: a new curricular track/minor/thread/certificate/stamp centered around “engineering design” is available for students, and the number of students receiving it is sustained over the next 5 years.
5. An increase in the number of non-engineering students who receive credit in engineering courses.

Entities to Engage

- SBDC
- Disciplinary design courses (and instructors)
- CoE advisory board
- BEAA
- Innovation and Entrepreneurship Center
- Center for Community Engagement
- Departmental advisory boards

Strategic Connections

University:

- Cross-campus collaborations
- Design-focused things attracts a broader range of students [BB&B]
- Seeking broader engagement across campus and a focus on technology sustainability

College:

- Engineering requires a good balance of concepts and application. Are we balanced?
- Design-focused things attracts a broader range of students [BB&B]
- Distinctive identity: Design is one of the few aspects that is in every curriculum
- Building and sustaining relationships is key to the long term sustainability of the (existing) design courses