Revitalizing Architectural Engineering's FYS through Core and Themed Modules

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The Leonhard Center for the Enhancement of Engineering Education

PennState College of Engineering | ARCHITECTURAL ENGINEERING

First Year Seminars can:

- Cultivate lifelong learning
- Increase in an individual's desire to engage
- Broaden areas of interest

Until now, current Penn State Architectural Engineering FYS were limited by:

- Outdated learning objectives
- Not showcasing the latest advancements in the field
- Lacks consistency among different course sections
- Not structured to be engaging
- Weak ties to University Req.

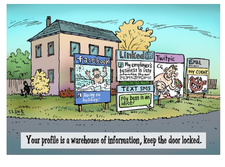
Core Areas

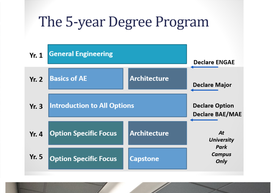
Building Technical Content

- What is AE and the Discipline Options
- AE in Practice: Fallingwater Tour
- East Halls Lecture and Site Tour
- Building Campus Scavenger Hunt
- Interdisciplinary Integration (AEI Team Video)

Building Professionals Content

- Professional Presence: In-person and Online
- Job Fair Navigation
- University Study Habits and Goal Settings
- AE Dept. Study Habits and Curriculum
- Ethics and Professional Licensure





Acknowledgments

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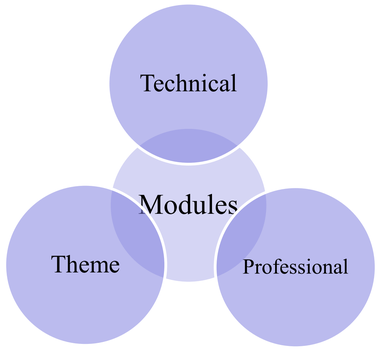
Course Redesign Basis

Aim: establish a new responsive, replicable, and theoretically-informed approach for our FYS offerings by:

1. Contribute to the mindset of launching careers of *World Class Engineer* stature;
2. Meet the goals put forth by the faculty senate for the FYS experience in preparing students for university study
3. Highlight architectural engineering career opportunities for future students
4. Provide a consistent way students are introduced to architectural engineering as a field
5. Develop a structured, yet customizable, learning modules can be developed and incorporated by AE faculty
6. Develop a set of curricular deployment and evaluation guidelines

For all sections, 3 component modules make up the course. Each accounts for 1/3rd (5 weeks) of the semester.



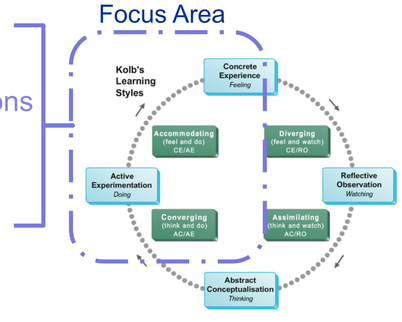
- Created to be in sequence or mixed within the 15 weeks.
- Self-contained for future faculty deployment beyond current instructors.

All modules go beyond in-class lecturing.

Active Strategies

- Increase faculty and peer interactions
- Real career examples
- Hands-on building experiences
- Team activities

Focus Area

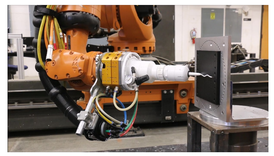


Themes

Current Piloted Themes

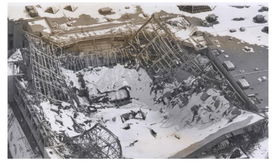
Sect. 001: Stadiums of the Future: Imagining Beaver Stadium

Sect. 002: Robots Building Buildings: Automating Construction



Sect. 003: Additive Construction: 3D Printed Buildings

Sect. 004: Greatest Building Failures of All Times



Sect. 005: Engineering Cities: Lego City Penn State

Theme Format Requirements

- Must have team activities but could also have individual activities.
- Must do hands-on exercises.
  - These can be the physical or virtual.
- Easy to complete in 4 weeks with 1 week for presentations.
- Must be related to AE.

Theme Lecture Breakdown Requirements

- 2 periods on the theme and team building.
- 1 period for brainstorming of ideas and initial feedback.
- 1 period for active building/hands-on activities.
- 1 period for presentation and judging with reflection.

References

- Iverson and Colky (2004), Kolb (1984),
- Porter and Swing (2006), Padgett et al. (2013)