CECS SENIOR DESIGN REDESIGN
Great students, great projects, great curriculum for 2016

BACKGROUND
A typical capstone class with a unique, multidisciplinary mix of students and projects.
- Serves civil, electrical, environmental, and mechanical engineering students in the College of Engineering and Computational Sciences.
- Each semester over 350 senior students engage with more than 50 unique, client-driven projects.
- The Mines Capstone Program is a two-semester sequence (six credit-hours in total)
- Multidisciplinary collaboration is powerful and challenging.

High-level 2-Semester Class flow

WHAT IS CHANGING
1. All but a handful of large-group lectures have been removed and replaced with student led modular instruction.
2. Addition of discipline and role specific “Unconferences” to strengthen sense of student identity and collaboration.
3. Deploying new EduSourced project collaboration software tool to introduce students to industry-type tools and increase client engagement.
5. New grading/assessment structure based on national capstone program best practices.

SUCCESSFUL MULTIDISCIPLINARY COLLABORATION
Requires Students To Both Understand Where Their Unique Skills Fit Within the Larger Context And To Properly Apply Discipline Specific Tools While Addressing Their Project.

MODULAR, DIFFERENTIATED INSTRUCTION

MODULE = a 10-25 minute “deep dive” into a specific design tool, topic or technique.

Offering modules enables divergence in expertise and learning over the course of two semesters and embraces the unique tools, techniques, and language used in the industries in which students hope to work.
- First tested Spring 2014 with 55 students
- Students given a “menu” of 16+ modules, pick any 8
- Initially all modules were 25-minute, optional “in person” mini-lectures
- All modules moved online with embedded, interactive quizzes for Fall 2016

Jered H. Dean, Mechanical Engineering
CECS Capstone Design Program Director, Teaching Associate Professor

INTENDED OUTCOMES
- Increased student ownership of their projects.
- Increased student satisfaction as determined by Q1 and Q8 on the end of semester course evaluation form.
- Meet or exceed all student learning outcome targets.
- Increased client satisfaction leading to better, more impactful projects for our students.

EDUSOURCED =
Discussions, task lists, file management, and client/peer feedback all in one tool

PROFESSIONAL PRACTICE GROUP LECTURES

What if we applied the “Law of Two Feet” to education?

Law of Two Feet
If you find yourself in a situation where you aren’t learning or contributing, you are responsible for using your two feet to find a place where your participation is more meaningful.”

The Law of Two Feet is often used as a guiding principle at unconferences

It’s going to be a blast!