

Subject Identifier: ENGR/INDU

Course Number: ENGR 480 & INDU 492 – Special Topics in Industrial Design

Credit Hours: 3

Course Title: Powers of Scale in Design and Place-making

Course Description

In practice, transportation system design requires a multi-disciplinary effort (civil engineers, city planners, urban designers, community members, etc.). This applied course allows students to fully experience the complexities of real world systems design in an instructional setting. The instructors will leverage their complimentary experience in industrial/systems design and transportation engineering/planning to guide students through a complex and focused exploration of urban (street) design as a means of place-making. Further, through interaction with community members and leaders, we will explore designers', planners' and engineers' roles in ethical design decision-making. Our goal is for students to fully engage with the place they are studying (in this case, the Grace Street corridor through JMU's campus) via studio and classroom environments that will require reading, writing, drawing and making and through quantitative and qualitative fieldwork and direct interaction with stakeholders.

This course will explore the significance of a physical system (i.e.: a street) at different scales. Participants will be challenged to think about a street from a 30,000 ft. view, 5,000 ft. view, 100 ft. view and the 6 in. view and consider:

- What are the different design requirements at each level?
- How can we use methods from different disciplines to evaluate the system's design and functionality?
- How does the system's design influence/determine its use and shape it as a "place"?
- How could the system contribute to sustainable development?
- How can we as designers/engineers/planners elevate the level of design to build more inclusive and resilient places within communities?

Co-requisites: None

Pre-requisites: Junior or Senior Engineering or Industrial Design major

Size: 15 students (half Engineering, half Art & Design majors)

Purpose and/or Justification

Explore and evaluate the design of a physical system (in this case, a street) utilizing a variety of methods from different disciplines.

Example Learning Objectives

By the end of the course, students will

1. Explore system analysis, design methods and tools from different disciplines, including engineering, industrial design, geographic science, urban design, et cetera, and provide a critical review of each method.
2. Evaluate a place in terms of social, environmental, and economic dimensions of sustainability.
3. Collaborate on an interdisciplinary team to complete a design/re-design project that utilizes tools and methods from the class.
4. Effectively communicate ideas verbally and visually to a diverse audience.

Faculty

The course will be co-taught by Dr. Elise Barrella (Engineering) and Prof. Audrey Barnes (Industrial Design). The course will be offered as a part of the courses offered to fulfill the technical electives required in the engineering curriculum and a design elective (INDU 492 – Special Topics in Industrial Design) in the industrial design concentration.