

<b>Course</b>	CE 48700 – Civil Engineering Design Project I
<b>Type of Course</b>	Required for Civil Engineering Program
<b>Catalog Description</b>	Planning, analysis, and design of a civil engineering project; an integrated and realistic group project involves as much as possible all major aspects of the civil engineering profession. Emphasis on teamwork, project management, testing through simulation or modeling, oral and written communications.
<b>Credits</b>	3
<b>Contact Hours</b>	3
<b>Prerequisite Courses</b>	For course eligibility, you must have the instructor’s consent, and you must have taken one of the following courses: CE 34500, CE 36500, CE 41800, CE 47800.
<b>Corequisite Courses</b>	None
<b>Prerequisites by Topics</b>	Transportation Engineering, Environmental Engineering, Hydraulics Engineering, Design of Concrete Structures
<b>Textbook</b>	None
<b>Course Objectives</b>	To develop capabilities of students to solve real-life problems. Students have to apply knowledge from their previous course work to accomplish projects formulation to prototype evaluation.
<b>Course Outcomes</b>	Students who successfully complete this course will be able to: <ol style="list-style-type: none"><li>1. Formulate a problem statement. [1]</li><li>2. Develop multiple preliminary design solutions using brainstorming techniques. [1,2]</li><li>3. Evaluate alternative solutions using a well-defined criteria and produce feasible solutions. [1,2,4]</li><li>4. Understand and use the most recent federal/state regulations and standards in the project design. [2,4]</li><li>5. Successfully develop detailed final design for the project considering safety, economical, ethical, professional, and environmental issues. [1,2,4]</li><li>6. Develop technical drawings and specifications if needed for the project. [1,2,3]</li></ol>

7. Develop cost estimate and schedule for project activities, if needed. [1,5]
8. Write clear and concise technical reports. [3]
9. Present the final design to both technical professionals and public. [3]
10. Knowledge of contemporary issues related to the area of the project [7]
11. Understand the impact of civil engineering on society. [2,4]
12. Recognition of the need for life-long learning. [4,7]

**Lecture Topics**

1. Introduction, discuss the Capstone Senior Design Guidelines
2. Formulation of problem statement
3. Brainstorming and conceptual designs
4. Evaluation of conceptual designs
5. Detailed design
6. Knowledge of contemporary issues
7. The broad education necessary to understand the impact of engineering solutions in global and societal contexts
8. Recognition of the need for life-long learning
9. Understanding professional and ethical responsibility
10. Discussion related to oral presentations
11. Oral Presentations

**Computer Usage**

High

**Laboratory Experience**

Low

**Design Experience**

High

**Coordinator**

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**Date**

7 December 2018