CATALOG DESCRIPTION: A capstone design experience using a team approach for the preliminary and final design of a Civil Engineering Project. Documentation of all stages of the design project. Written and oral presentation of the final design.

PURPOSE AND OBJECTIVE OF THE COURSE:

The main objective of this course is to provide understanding of the basic concepts of planning, execution, and design of civil engineering projects to undergraduate students planning to pursue a career in any area of Civil Engineering. The purpose of the course is to give students an opportunity to:

- Participate on a project design team,
- Learn how to apply tools and procedures learned in other courses to a complete project, and
- Understand how typical civil engineering projects progress from concept to final plans.

INSTRUCTOR: William F. Eichfeld
CEE Department
453-7838 (Office)
457-5242 (Home-Before 9:00 p.m.)
Email: eichfeld@engr.siu.edu

OFFICE: ENGR B, Room 30
OFFICE HOURS: 1:00 - 3:50 p.m. MW
1:00 - 2:50 p.m. T

TEAM PROJECT

The whole class will work in the teams which were formed during CE 495A. Each team will be required to completely design the project assigned in CE 495A. At the end of the semester, each team will submit a set of design plans and a project report which includes a complete set of calculations. Also at the end of the semester, each team will orally present and defend its design. Oral presentations must be made with PowerPoint or other similar software.

DELIVERABLES:

**Design Plans:** A set of design plans must be prepared on 24x36 inch sheets and must be prepared using AutoCAD or equivalent software. As a minimum, the set should include:

- A cover sheet which includes at least the Project name, the Project location, an Index, and the names of the Team Members.
- A complete site plan along with topography of the area.
- General Notes, Schedules, and Specifications as required. Reference Specifications should be identified here as well as in the design report.
- A plan of the project showing how various components of the project are laid out.
- All details (plans, profiles, sections, and detail drawings) necessary to complete the project.

Each sheet must be signed **AND** checked (initialied or signed by **TWO** team members)

**Final Report:** The final report is the responsibility of the entire team and is **not** the sole responsibility of the project manager. However, the project manager will be responsible for compiling the final report. The final report should clearly indicate the name of the team member responsible for completing each task. As a minimum, the final report should include the following:
Final Report (continued)

Title Page
Cover Letter (a signed letter of transmittal for the plans and report)
Table of Contents including Figures, Tables, and Appendices
Executive Summary (this includes any changes from the accepted proposal and any recommendations for further or other work)
Organizational Chart
Project and Site Descriptions
Scope of Work from the accepted proposal (any changes must also be noted here)
List of required Permits
Specifications including a list of Reference Specifications
List of Engineering Standards (codes, handbooks, manuals, etc.) used
Estimated Quantities and Costs

The following items should be presented in appendices

- Responsibilities and Contributions of each team member
- Comparison of Estimated versus Actual Time Spent on the Project
  Note: Every team member should keep track of time spent on the project. The final personnel expenditure for the design should be calculated based on the billable rate for each category of work and time spent by each team member on each category of work. Time sheets or summaries should be included.
- Minutes of Meetings (hand written or typed)
  Note: One person at each meeting should be assigned to take minutes of the meeting and prepare the minutes to be distributed to other team members. This can be a different person each time. The minutes should include the date, time, and place of the meeting; the names of the people who are there; the items discussed; and (especially) any decisions made at the meeting. This is not a transcript.
- Design Calculations: signed AND checked (initialed or signed by TWO team members)
- Resumes: updated and in team format

**IMPORTANT DATES:**

Progress Reports to Class Instructor each week (by the Project Manager)
Preliminary Plans the week of October 17, 2016
Preliminary Oral Presentations* the week of November 28, 2016
General Class Meeting Tuesday, November 29, 2016
Submission of Final Plans and Design Reports Monday, December 5, 2016 at 2:00 p.m.
Final Oral Presentations** Tuesday, December 6, 2016 after 1:00 p.m.

*These Presentations are meant to prepare you for final presentations and to identify items that may need improvement. These presentations will not be formal but must be presented in a professional manner even though they will not be graded. The presentations will be given during the assigned class time or some other mutually convenient time.

**All presentations will be made on December 6, 2016. Each Team will have 30 minutes for its presentation. Each member will make part of the presentation. It will be necessary for all of you to be present from 1:00 p.m. to 4:30 p.m. The presentations will be made to the Professional Advisory Board after their morning meeting and their luncheon (1:00 ~ 1:30).
TEAM MEETINGS:
- Project Manager with Instructor: each week (minimum)
- Instructor with Teams (evaluation): each one or two weeks
- Team Meetings (all members): once each week (minimum)
- Sub-team and other Meetings: as needed - team decision

GRADING POLICY:
One of the objectives of the course is to help students understand how to successfully complete their portion of the project while working as a member of the design team. Therefore, your final grade will depend on your individual performance in completing your part of the project and your interpersonal relationships with other team members. The team members of each group will be asked to evaluate their teammates in order to assess each group member's contribution to the team and project. Final grades will be calculated using the grading distribution and final grade assessment provided below. Final grades will be calculated using the grading distribution and final grade assessment provided below.

Grading:
- Final Project Report and Plans - Team Effort: 25 %*
- Final Project Report and Plans - Individual Effort: 10%
- Oral Presentation - Team Performance: 25 %*
- Oral Presentation - Individual Performance: 15 %
- Confidential Evaluations by other Team Members: 25 %

* Each group member will be given the same grade for these items

Senior Exit Interviews: As a part of the Department’s continuing assessment and evaluation activities each of you will be given the opportunity to make oral and written comments about your experiences at SIUC. Near the end of the semester the Department Chair will write a letter to each of you inviting you to meet with him and providing surveys to complete. Your CE 495B grade will be incomplete until the surveys are submitted and the meetings are scheduled.

Final Grading Scale:

<table>
<thead>
<tr>
<th>Percent Scores</th>
<th>Final Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>90 and above</td>
<td>A</td>
</tr>
<tr>
<td>80 → 89</td>
<td>B</td>
</tr>
<tr>
<td>70 → 79</td>
<td>C</td>
</tr>
<tr>
<td>60 → 69</td>
<td>D</td>
</tr>
<tr>
<td>59 and Below</td>
<td>F</td>
</tr>
</tbody>
</table>

Important Facts: