

Syllabus

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CIVE 461: Course Syllabus - Winter 2025

General

A new capstone design stream is being developed. The goal is to create a realistic design experience that encompasses a variety of disciplines within Civil and Environmental Engineering. Two courses, CIVE 460 (Fall term: 3-0-3/2) and CIVE 461 (Winter term: 3-0-3), are planned.

In the Winter term course (3-0-3), the students do the project for which they submitted a proposal. They will be tasked with meeting the schedule of deliverables defined in their proposals. In addition, each team will be required to provide peer review for another team. Teams will have access to staff and consultant advisors. Teams will also be expected to provide owner's representatives with progress updates. While 3 hours of lecture is scheduled per week, it is expected that formal lecture content will be less than 1 hour/week with the extra time devoted to addressing problems as they arise and for students to meet with team, client, staff or consulting advisor(s).

Objectives

The second term course (3-0-3) will see students completing the design project started in the first term. There will be minimal lectures. There are no exams or assignments beyond the design project itself.

In completing the course, the students will:

Demonstrate an understanding of the civil and environmental engineering design environment

Recognize and apply universal design principles

Demonstrate a working knowledge of the design process

Apply design concepts

Demonstrate an understanding of the value of time

Demonstrate an understanding of the role of design codes and standards

Texts

Texts listed below are available electronically through U of A library or the U of A bookstore.

1. Practical Concepts for Capstone Design Engineering by Bloetscher and Merehoff
2. The Engineering Capstone Course by Hoffman
3. Universal Principles of Design by Lidwell, Holden, and Butler
4. ISO 9001:2015 : A Pocket Guide by Watkins
5. Lessons in Professional Liability by the DPIC Companies (out of print but scanned copy available at nominal cost through bookstore)

Canvas Site

We will be trying out the Canvas site for the first time. The Canvas site will contain the project RFP(s) and supporting documentation. Design submissions (deliverables) will be through links provided in Canvas.

Project Notebook

Each student is expected to keep a project notebook. Use this to record daily activities on the project, something like a diary. The Project Notebooks will be reviewed on a weekly basis by TA or instructor.

Design Notes

Design notes, distinct from the Project Notebook, document design checks and final design decisions that are taken, usually those involving calculations. The Project Notebook will likely have a rough draft of this material. The Design Notes document the work in a complete and succinct way. What works really well for this is MathCAD or some equivalent.



Item	Weight (%)
Bi-weekly Progress (5 @ 1% each) (team submission)	5
Project Notebook (individual, reviewed weekly)	20
Peer Reviews (2 @ 2% each) (team submissions)	4
Poster and Presentation (team effort)	10
Team Self-Evaluations (2 @ 1% each) (individual response)	2
Consultant (Mentor) Feedback	2
Feasibility Report (team submissions)	
Draft	2
Final	18
Design Notes supporting PE (individual submission)	4
Draft Preliminary Engineering (PE) Report (team submission)	3
Closeout Submission (team)	
Final PE Report	27
Closeout Progress Report	1
QA/QC Documentation	1
Organized (indexed, cross-referenced) Design Notes	1
Total	100

Course Policies

The course marks are roughly 25% individual and 75% team. Engagement in the design and contribution to your team's effort will be assessed weekly based on the content of your Project Notebook. If you are not going to be present (sickness, job interview, etc.) then you need to inform the instructor and/or TA. Otherwise your absence will be unexcused (the only way to get a zero for that week). Apart from that, the weekly assessment (in lab period) of the Project notebooks will use a fairly coarse scale:

Support	Percentage	Description
	0%	no-show with no excuse
	25%	present in lab but nothing recorded in notebook for past week
	50%	pretty weak stuff; quite a bit more expected from 8 - 10 hours of work

75% = adequate

90% = very good

100% = professional level

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