

ENVE 4910W Environmental Engineering Projects I Fall 20xx Syllabus

Instructor: Dr. Timothy Vadas, vadas@engr.uconn.edu, 860-486-5552

Class meets: T/Th 2:00-5:00 PM, Castleman 204/212 (See attached schedule)

Course Description:

Students working individually or in groups produce a solution to environmental engineering design projects from data acquisition through preliminary design, cost estimating and final specifications, oral presentation and written reports.

Course Purpose:

All undergraduate majors in Environmental Engineering must take this course. This course covers topics important in preparing students to responsibly engage in the environmental engineering profession as required for accreditation of the program (see next page). Because these topics are inherently practice-oriented, there are a few lectures taught by practicing professionals who have extensive experience in the civil or environmental engineering profession. Teaching of writing for job preparation and professional reports will also be a focus. Students will form groups to prepare proposals for a design project they will conduct over the course of the academic year.

Course Outcomes:

This course contributes to students' ability to:

- Communicate in writing and orally effectively to different audiences
- Work effectively in teams on demanding projects
- Design a system, component or process in an environmental engineering context
- Address relevant regulations in the design process
- Estimate cost of design implementations
- Synthesize skill sets learned in other courses
- Gain knowledge of contemporary issues in environmental engineering

Course Writing Components:

The senior design courses (ENVE 4910W & 4920W) carry a "W" designation, and thus include an intensive writing component, including instruction, feedback and revision. All writing is double-space, 1" margins, Times New Roman size 12 font. The writing assignments for 4910W consist of:

- Students will write a three-page application (1 pg resume and 2 pg cover letter) for a position on one of the project teams and will present their qualifications in an oral job interview.
- Students will write a two-page essay on a case study in engineering ethics.
- Students will write a two-page position paper on an environmental engineering topic.
- Students will write a five-page term paper on a group assigned topic (related to research for the design project).
- Students will write documentation related to team and project development meetings, including agendas, minutes, and assigned tasks and turn in a one-page example for grading.

- Groups will write a proposal for a design project that will be implemented in the subsequent semester (10 pages max). Each student will write a minimum of two pages of the proposal; each student's contribution must be clearly indicated.

These assignments address different aspects of writing you will encounter in your working life including the use of different types of writing (technical or persuasive), addressing different audiences (peers, public, regulators, future employers), and overall the ability to effectively analyze and convey data and design decisions in writing. Writing feedback will be provided by the instructor, your peers and your project advisors in order to revise and improve your writing. Due dates for assignments are indicated on the schedule below.

Each student must pass the writing component in order to pass the course.

Grading:

Course Component

Job application	10%
Ethics essay	10%
Position paper	10%
Project documentation	10%
Term paper	20%
Oral Proposal*	10%
Written Proposal*	30%

Other grade considerations: Attendance at Tuesday classes/seminars/presentations is required. Deductions in grade will be made if there are more than two unexcused absences

* Individual grades within a group can vary

Accreditation:

As the senior design course for Environmental Engineering, this course addresses many of the Accreditation Board for Engineering and Technology (ABET) criteria:

PROGRAM EDUCATIONAL OBJECTIVES (PEO's)

These are expected accomplishments of graduates during the first few years after graduation.

The Environmental Engineering undergraduate program educational objectives are to prepare alumni/ae with the knowledge and skills needed to:

- contribute actively to the practice and profession of engineering in the public and/or private sectors in the technical area of environmental engineering;
- follow the path that leads towards becoming licensed professional engineers, assessing the impact of human activities on the environment, designing and constructing solutions to minimize and mitigate such impacts, and tending to the natural environment as our life support system;
- practice lifelong learning through post-graduate and professional education.

STUDENT OUTCOMES

This is what students are expected to know and be able to do by the time of graduation

- a.) an ability to **apply knowledge of mathematics, science, and engineering**
- b.) an ability to **design and conduct experiments**, as well as to **analyze and interpret data**
- c.) an ability to **design a system, component, or process** to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- d.) an ability to **function on multi-disciplinary teams**
- e.) an ability to **identify, formulate, and solve engineering problems**
- f.) an understanding of professional and ethical responsibility
- g.) an ability to communicate effectively
- h.) the broad education necessary to understand the impact of engineering solutions in a **global, economic, environmental, and societal context**
- i.) a recognition of the need for, and an ability to **engage in life-long learning**
- j.) a knowledge of **contemporary issues**
- k.) an ability to use the **techniques, skills, and modern engineering tools** necessary for engineering practice.

ENVE 4910W Schedule

<u>Date</u>	<u>Time</u>	<u>Location</u>	<u>Topics</u>
Aug. 30	2:00 PM	CAST204	Introduction, topic presentation
Sept. 6	2:00 PM	CAST114	Job applications due, job interviews
Sept. 13	2:00 PM	CAST204	Cover letter review, job assignments
Sept. 20	2:00 PM	CAST204	Position paper (read Eggen et al 2014), final cover letter due
Sept. 27	2:00 PM	CAST204	Position paper topic presentations
Oct. 4	2:00 PM	CAST204	Position paper draft due, peer review workshop
Oct. 11	2:00 PM	CAST204	Teamwork discussions, final position paper due
Oct. 18	2:00 PM	CAST204	Group progress presentation
Oct. 25	2:00 PM	CAST204	Ethics essay draft due, Group progress presentations
Nov. 1	2:00 PM	CAST204	Ethics essay discussion/feedback
Nov. 8	2:00 PM	CAST204	Final ethics essay due, Term paper draft due, peer review
Nov. 18	2:00 PM	CAST204	Draft of proposal due to your advisor
THANKSGIVING BREAK			
Nov 29	2:00 PM	CAST204	Project Proposal Presentations, final term paper due
Dec. 6/8	2:00 PM	CAST204	Project Proposal Presentations, final proposal due Dec 6

ADDITIONALLY

Tuesdays 3:30-5:00 PM Meetings with advisors (on an as needed basis)
 Thursdays 2:00-5:00 PM Reserved for team meetings, meetings with sponsors
 CAST114 and 212 are reserved, other rooms are available to reserve (123, 306, SU)
 T/Th 2:00 or 3:30 PM Seminars (tentative schedule below)

SEMINARS

<u>Date</u>	<u>Time</u>	<u>Location</u>	<u>Topics</u>
Sept. 1	2:00 PM	CAST212	John Bau – resume writing and interviewing
Sept 22	2:00 PM	CAST212	S. Govindan, Bentley Systems
Oct 18	3:30 PM	CAST212	Engineering Ethics (tentative, might be Oct 25)

Chi Epsilon grad school event, evening TBD