Environmental Engineering Senior Design

The University of Connecticut Environmental Engineering Program seeks to enrich the capstone Senior Design Project experience for our students by engaging industry, government and other practitioners to serve as project sponsors. Students at the University of Connecticut (UConn) complete their formal training with a capstone Senior Design experience. This two-semester course allows students to apply their training to solve real-world engineering problems. Importantly, students learn about design principles, aspects of ethics and societal factors that influence engineering decisions and develop their skills at communicating ideas. Involvement of industry, government and other practitioners in the Senior Design Project Program enhances student experiences by providing richer design projects and first-hand exposure to the day-to-day practice of civil or environmental engineering.

While completing the Senior Design Project, students work in teams under the guidance of a faculty mentor and a practicing engineer to research the problem, brainstorm a range of solutions, and to develop a full design for the most promising solution. Example design projects for environmental engineering majors include those addressing site remediation, water and wastewater treatment, storm water and water resources management, recycling and renewable energy. Throughout the project design, students maintain contact with their mentors to communicate their progress through oral and written reports. The design experience culminates in a student presentation to the project sponsor and participation in the School of Engineering year-end Senior Design Expo at Gampel Pavillion.

Student Benefits:

Strong Communication Skills by documenting and presenting their ideas.

Active Problem Analysis through brainstorming, problem solving, group dynamics and benchmarking.

Design Analysis by learning design processes, standards and experimentation, and using analysis tools.

Potential employment by exposure to the sponsor's products, engineering practices and culture.

Teamwork often with an interdisciplinary component.

Sponsor Benefits:

Recruiting by collaborating with and evaluating outstanding undergraduate students over the course of 8 months.

Exposure to UConn's Unique Resources including faculty labs and research centers.

Expert Consulting through interactions with the faculty co-mentor.

Visibility as student teams and faculty share their impressions with peers.

Relationship with UConn through interactions with UConn Engineering faculty, as well as students.

Project Documentation as students submit written reports at intervals throughout the project timeline.

More information about the Senior Design Project Program in the UConn School of Engineering can be found at: http://seniordesign.engr.uconn.edu/

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If you are interested in sponsoring a design project or would like more information please contact:

Dr. Timothy Vadas, Assistant Professor, Environmental Engineering, vadas@engr.uconn.edu, 860-486-5552

Responsibilities and Expectations

The sponsor is generally expected to provide:
- A project idea or challenge that:
    - Is not an urgent, immediate need for the company (a recently completed project could be used)
    - Is exploratory in nature, allowing the students to offer options for future full design by the sponsor
    - Reflects a discrete project that may involve the analysis and redesign of existing or new infrastructure or treatment systems, advanced model development, civil or environmental sensor development
- $7,000 in support of a project (negotiable)
- A liaison engineer or technical representative who will meet with the team on a regular (i.e., approximately every two weeks) basis in person, via Skype or telephone conferencing to monitor and mentor their progress, and to share genuine input and guidance

The student team is expected to:
- Meet with the sponsoring company's liaison or technical representative to determine the sponsor's needs
- Develop a project plan including a project objective statement
- Meet (in person, via Skype or via telephone conferencing) with the liaison/technical representative approximately every two weeks
- Develop design concepts and select one design for full implementation
- Develop proof-of-concept models and analysis for design concepts
- Develop and submit to the sponsor a written report detailing the design challenge, justification for the chosen concept, final design drawings and specifications and conclusions*

UConn Engineering will provide:
- A faculty mentor for each project who will assist and co-mentor the team
- Access to computing and analytical laboratory resources as needed for the project

* NOTE: UConn Engineering does not guarantee deliverables beyond the final report.

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