Proposed Changes to Environmental Engineering Curriculum

Item 1: Change the ES 350 Heat and Mass Transfer pre-requisite for ENVE 304 Wastewater Process Design to a co-requisite.

Justification: The sequencing of ES classes and our ENVE classes was the problem relative to pre- and co-requisites. In our ABET sample curriculum ES 350 (semester six) has a pre-requisite of ES 347 Thermodynamics (semester five). ENVE 304 is shown to be taken in semester six. In several cases in the past because of compounded scheduling issues students ended up having to enroll in both ES 350 and ENVE 304, requiring a pre-requisite wavier. Dr. Frank Huang, who teaches the ENVE 304 class, indicates that students taking ES 350 in the same semester has not been as issue. This avoids the recurring problem of pre-requisite waivers.

Item 2: Revamping of ENVE 490 Senior Design Thesis.

ENVE 490, Senior Design Thesis, 3 cr (Original Catalog Description)

Prerequisite: Senior standing or consent of instructor

Design of equipment, unit processes, and systems in environmental engineering through application of scientific, technological, and economic principles. Emphasis is placed upon problem formulation and the conceptual, analytical, and decision aspects of open-ended design situations. Course integrates knowledge and skills gained in previous and concurrent courses.

ENVE 490, Senior Design Thesis I, 1 cr (Proposed Catalog Description)

Prerequisite: Senior standing or consent of instructor

Normally offered fall semester

An open-ended design of equipment, unit processes, and/or systems in environmental engineering through application of scientific, technological, and economic principles. The investigative component of the Senior Design Thesis focuses on identifying feasible design topics of interest to the student. Working with a faculty advisor, a thesis topic will be selected and the thesis scope and objectives defined. A preliminary thesis outline and literature review will be completed in accordance with the semester time-line schedule posted by the department. The investigative component integrates knowledge and skills gained in previous and concurrent courses.

ENVE 492, Senior Design Thesis II, 2 cr (Proposed Catalog Description)

Prerequisite: ENVE 490 with a grade of C or higher. This course shall be taken with ENVE490 in sequential semesters.

Normally offered spring semester

An open-ended design of equipment, unit processes, and/or systems in environmental engineering through application of scientific, technological, and economic principles. The design component of the Senior Design Thesis is a continuation in content of the investigative component completed in the previous semester. This course focuses on the design and economic analysis of the selected topic outlined in the deliverable for ENVE 490. An oral presentation and completed Senior Design Thesis including, but not limited to, introduction, scope and objectives, literature review, selection criteria, design and technical analysis, and economic analysis shall be completed in accordance with the schedule posted by the department. This capstone design component course integrates knowledge and skills gained in previous and concurrent courses.

Justification: The consensus of the faculty with input from the students is that this would distribute the academic load of a capstone project over two semesters during the senior year, result in a better deliverable, and help avoid potential problems with student completion of the senior thesis their final semester. The faculty feel that the student must demonstrate a minimum proficiency in the stated deliverables for ENVE 490 with a grade of C or better to advance to ENVE 492. The ABET sample curriculum will be modified to reflect this change.