

# ENVIRONMENTAL ENGINEERING (ENVE)

## ENVE 101 Introduction to Environmental Engineering

**Description:** Introduction to engineering design process through hands-on projects supported by instruction of underlying engineering science and fundamentals, model development, and the required tools. Be exposed to environmental engineering to know what it means to be an environmental engineer and an introduction to environmental engineering profession with focus on ethics.

**Credit Hours:** 3

**Max credits per semester:** 3

**Max credits per degree:** 3

**Grading Option:** Graded

**Offered:** FALL

## ENVE 210 Fundamentals of Environmental Engineering

**Prerequisites:** CHEM 109A or CHEM 113A with a C or better, and MATH 106 with a C or better

**Description:** Introduction to material and energy balances on environmental systems involving physical, chemical, and biological processes. Primary focus on single phase systems.

**Credit Hours:** 3

**Max credits per semester:** 3

**Max credits per degree:** 3

**Grading Option:** Graded

**Offered:** FALL

**Prerequisite for:** ENVE 410

## ENVE 322 Biological Principles of Environmental Engineering

**Prerequisites:** CIVE/BSEN 321

**Notes:** There will be two lab sessions, one focusing on microbes in water and one focusing on microbes in soil/sludge.

**Description:** Introduction to the basics of microbes in the environment, including basic microbiological concepts, microbial environment, detection/enumeration/identification of microbes, microbial interactions with environment, microbial remediation of pollutants, waterborne pathogens, and wastewater treatment and disinfection.

**Credit Hours:** 2

**Max credits per semester:** 2

**Max credits per degree:** 2

**Grading Option:** Graded

**Prerequisite for:** ENVE 401

## ENVE 401 Environmental Engineering Design I

**Prerequisites:** CIVE 321, ENVE 322; CIVE 351 or BSEN 350

**Notes:** The first of two courses in the capstone sequence.

**Description:** Practical application of the engineering design process in a team project focused on an authentic and comprehensive environmental engineering design project.

**Credit Hours:** 3

**Max credits per semester:** 3

**Max credits per degree:** 3

**Grading Option:** Graded with Option

**Offered:** FALL/SPR

**Prerequisite for:** ENVE 402

## ENVE 402 Environmental Engineering Design II

**Prerequisites:** ENVE 401

**Notes:** The second of two courses in the capstone sequence.

**Description:** Practical application of the engineering design process in a team project focused on an authentic and comprehensive environmental engineering design project.

**Credit Hours:** 3

**Max credits per semester:** 3

**Max credits per degree:** 3

**Grading Option:** Graded with Option

**Offered:** FALL/SPR

**ACE:** ACE 10 Integrated Product

**Experiential Learning:** Case/Project-Based Learning

## ENVE 410 Environmental Fate and Transport

**Prerequisites:** CIVE 310 or CHME 332; ENVE 210 or CHME 202; and CIVE 321

**Description:** Covers fate and transport principles, such as interphase chemical equilibrium, the formulation and application of the advection-diffusion equation, and their specific environmental engineering applications.

**Credit Hours:** 3

**Max credits per semester:** 3

**Max credits per degree:** 3

**Grading Option:** Graded

## ENVE 430 Sustainable Design in Environmental Engineering

**Prerequisites:** CIVE 321; Co-requisite STAT 380

**Description:** Introduction to sustainability concepts and sustainable engineering design processes for environmental engineers such as life cycle assessment, multi-criteria decision analysis, and analysis of renewable energy systems.

**Credit Hours:** 3

**Max credits per semester:** 3

**Max credits per degree:** 3

**Grading Option:** Graded

**Offered:** FALL