

# ENVIRONMENTAL ENGINEERING (ENVE)

## Environmental Engineering Undergraduate Courses

### **ENVE 101 INTRODUCTION TO ENVIRONMENTAL ENGINEERING (3 credits)**

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.

### **ENVE 210 FUNDAMENTALS OF ENVIRONMENTAL ENGINEERING (3 credits)**

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

**Prerequisite(s):** CHEM 1180 with a C or better, and MATH 1950 with a C or better

### **ENVE 322 BIOLOGICAL PRINCIPLES OF ENVIRONMENTAL ENGINEERING (2 credits)**

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.

**Prerequisite(s):** CIVE 321

### **ENVE 401 ENVIRONMENTAL ENGINEERING DESIGN I (3 credits)**

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

**Prerequisite(s):** CIVE 321, ENVE 322, CIVE 352

### **ENVE 402 ENVIRONMENTAL ENGINEERING DESIGN II (3 credits)**

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

**Prerequisite(s):** ENVE 401

### **ENVE 410 ENVIRONMENTAL FATE AND TRANSPORT (3 credits)**

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.

**Prerequisite(s):** CIVE 310 or CHME 332; ENVE 210 or CHME 202; and CIVE 321

### **ENVE 430 SUSTAINABLE DESIGN IN ENVIRONMENTAL ENGINEERING (3 credits)**

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.

**Prerequisite(s):** CIVE 321; Co-requisite STAT 3800

### **ENVE 898 SPECIAL PROBLEMS IN ENVIRONMENTAL ENGINEERING (1-6 credits)**

Special research-oriented problems in current topics in environmental engineering.

**Prerequisite(s):** Permission.

### **ENVE 899 MASTER'S THESIS (1-10 credits)**

Master's thesis work

### **ENVE 990 SEMINAR IN ENVIRONMENTAL ENGINEERING (1 credit)**

Presentation and discussion of current research topics and projects in environmental engineering and closely allied areas.

**Prerequisite(s):** Permission. Not open to non-degree graduate students.

### **ENVE 998 SPECIAL TOPICS IN ENVIRONMENTAL ENGINEERING (1-6 credits)**

Independent library and/or experimental research, analysis, evaluation and presentation of current and advanced topics in environmental engineering and closely related areas.

**Prerequisite(s):** Permission.