

# ENVIRONMENTAL ENGINEERING (ENVENG)

---

## **ENVENG 3340 Environmental Engineering 4 Credits**

Water, air and soil chemistry; toxicity and risk; watershed analysis; mass balance analysis; groundwater hydrology; water and wastewater treatment; surface water quality; solid and hazardous waste management; air pollution control.

**Components:** Laboratory, Class

**Prereqs/Coreqs:** P. a "C-" or better in (CHEMISTRY 1450 or CHEMISTRY 1240) and (( CIVILENG 2000, CIVILENG 2220, and CIVILENG 2630) or COMPUTER 1830))

## **ENVENG 3950 Environmental Engineering Cooperative Education 3 Credits**

Work experience under the direction of the College of Engineering, Mathematics and Science Cooperative Education and Internship Program. During co-op the student is expected to be away from his/her studies at UW-Platteville and work for an industry for a semester and summer.

**Components:** Field Studies

**Prereqs/Coreqs:** P. Department consent

## **ENVENG 4300 Hydrology 3 Credits**

Hydrologic cycle and data collection; rainfall-runoff relationships, and models; statistical analysis of streamflow and precipitation measurements; runoff estimation using Rational, TR55, and USGS Regression methods and computer models; hydrograph analysis; detention pond and outlet structure design; culvert design and analysis; water surface profile analysis using HEC-RAS.

**Components:** Laboratory, Class

**Prereqs/Coreqs:** P. a "C" or better in CIVILENG 3300 and ENVENG 3340

## **ENVENG 4310 Groundwater Hydrology 3 Credits**

The occurrence, movement, and properties of groundwater. Principles of groundwater flow. Well hydraulics, saturated and unsaturated flow systems. Physical and chemical processes affecting behavior and transport of groundwater contaminants. Field methods of groundwater investigations. Contaminated site assessment. Groundwater modeling. Groundwater modeling, monitoring, and remediation.

**Components:** Laboratory, Class

**Prereqs/Coreqs:** P. ENVENG 3340 and (CIVILENG 3740 or SCSCI 2230 or GEOLOGY 3130) with a grade of "C" or better

## **ENVENG 4330 Air and Waste Management 3 Credits**

Determining quantities and physical properties of industrial and municipal wastes. Waste minimization, life cycle analysis and environmental audits. Regulatory framework for air and waste management. Design and operation of solid waste facilities for landfilling, composting, recycling and incineration with energy recovery. Air pollution toxicology and risk assessment; air pollution control technologies.

**Components:** Laboratory, Class

**Prereqs/Coreqs:** P. a "C" or better in ENVENG 3340

## **ENVENG 4400 Municipal Hydraulics 3 Credits**

Population estimates, municipal water and wastewater quantities and requirements; design and analysis of municipal water distribution systems, storage reservoirs, and pumping stations; design of stormwater and wastewater collection systems. Municipal open channel flow applications.

**Components:** Class

**Prereqs/Coreqs:** P. a "C" or better in CIVILENG 3300 and ENVENG 3340

## **ENVENG 4410 Wastewater Treatment and Management 3 Credits**

Determination of sewage flowrates; wastewater characteristics; design and operation of resource recovery (wastewater treatment) facilities; advanced wastewater treatment and effluent disposal; nutrient removal; emerging contaminants; biosolids processing and management; anaerobic digestion for bioenergy generation.

**Components:** Class

**Prereqs/Coreqs:** P. a "C" or better in ENVENG 3340; C: CIVILENG 3300

## **ENVENG 4420 Water Supply and Treatment 3 Credits**

Water sources and water demand. Quality and quantity of source water. Physical and chemical treatment processes for contaminant removal. Design and regulation of drinking water treatment facilities. Residuals management. Appropriate water treatment technologies for developing countries. Water reuse. Watershed management to protect or enhance water quality. Emerging issues in water supply and treatment.

**Components:** Class

**Prereqs/Coreqs:** P. a "C" or better in ENVENG 3340

## **ENVENG 4940 Undergraduate Research 1-3 Credits**

Introduction to research methods in environmental engineering, literature review, data analysis, and design. A written report will be submitted to the sponsoring faculty member.

**Components:** Research

**Prereqs/Coreqs:** P. CIVILENG 2000 and permission of department chair