ENVIRONMENTAL ENGINEERING (ENVE)

ENVE 201
Earth Environ Sci
This course introduces students to the fundamentals of earth and environmental science. Topics include: earth systems science; geologic processes, soils, and minerals; global tectonics and earthquakes; environmental systems and biogeochemical cycles; land resources and agriculture; renewable and nonrenewable energy; water resources and water pollution; air pollution; solid waste; climate alteration and global climate change; and environmental sustainability.
Prerequisite(s): CHEM 122 or CHEM 124
Lecture: 3 Lab: 0 Credits: 3

ENVE 401
Introduction to Water Resources Engineering
The theory and practice involved in planning and design of water systems are introduced in this course. Topics include hydraulics, hydrology, storm water management, water supply distribution, and waste water collection and transport systems. Hydraulics includes flow of fluids through orifices, weirs, venturi meters, laminar and turbulent flow in closed conduits, open channel flow. Hydrology includes rainfall, runoff, and collection and distribution of water. Model analysis using the principles of dimensional analysis and software applications.
Lecture: 3 Lab: 0 Credits: 3
Satisfies: CAE Design Course (D)

ENVE 402
Introduction to Environmental Engineering and Sustainable Design
This course provides an overview of how environmental engineers integrate biological, chemical, and physical sciences with engineering design methods to develop solutions to environmental problems. Topics include air pollution, water pollution, solid waste management, fate and transport of contaminants, pollution prevention, environmental regulation, risk assessment, climate science, and sustainability assessment. Focuses on applications and actual design practice.
Prerequisite(s): CHEM 124 and MATH 252
Lecture: 3 Lab: 0 Credits: 3
Satisfies: CAE Design Course (D)

ENVE 403
Introduction to Occupational and Environmental Health and Safety
This course is intended to introduce students to the basics of occupational and environmental safety and health. Topics include fundamental principles in industrial hygiene and occupational and environmental safety based in the anticipation, recognition, evaluation, and control of chemical, biological, physical, and ergonomic hazards that can be encountered in the workplace and other settings. Applications include indoor air pollution control, natural disaster mitigation, and infectious disease transmission and control. Understanding of basic chemistry and elementary statistics is recommended.
Lecture: 3 Lab: 0 Credits: 3

ENVE 404
Water and Wastewater Engineering
Water quality and water supply issues make up this course including the physical, chemical, and biological processes involved in water treatment. Process design, operations, and management are also considered.
Lecture: 3 Lab: 0 Credits: 3

ENVE 463
Introduction to Air Pollution Control
Air pollution sources and characteristics of source emissions, atmospheric reactions, effects of pollutants, and techniques of emission control are presented in this course. Legal and administrative aspects of air pollution control are also described.
Lecture: 3 Lab: 0 Credits: 3

ENVE 476
Engineering Control of Industrial Hazards
Design of control systems to enhance occupational safety and health; how to recognize and control existing or potential safety and health hazards.
Prerequisite(s): ENVE 426*, An asterisk (*) designates a course which may be taken concurrently.
Lecture: 3 Lab: 0 Credits: 3

ENVE 485
Industrial Ecology
This course provides an overview of industrial ecology, the study of the science and engineering relationships between cultural and ecological systems, and how those relationships can be managed to achieve a more sustainable economy. Because it is an interdisciplinary field, topics include technology (science and engineering), public policy and regulatory issues, and business administration.
Lecture: 3 Lab: 0 Credits: 3

ENVE 497
Special Project
Special design project under individual supervision of instructor. Consent of instructor is required.
Credit: Variable