Environmental Engineering (EVEN)

EVEN 2304 Computer Methods for EVEN **3 SCH (3-0)**
Basic computer methods useful for environmental engineering analysis and design. Introduction to programming, analysis and application software, with hands-on applications. Applications of structured, object-oriented and event-driven programming and relational databases for environmental problems.

EVEN 2310 Intro to Environmntl Engineer **3 SCH (3-0)**
Science basics, law and regulations, protection of human health and the environment from air, water, solid/hazardous and product pollution. Structure of the environmental industry. Prerequisite: sophomore standing in physical science, engineering or agriculture.

EVEN 2311 Env. Engr. Ethics & Policy **3 SCH (3-0)**
Recognition and formulation of ethical questions and issues in engineering professional practice with topics linking environmental policy and economics with philosophical and cultural considerations, along with the U.S. experience of environmental policy, economics and regulation.

EVEN 2372 Envir Eng in a Global Society **3 SCH (3-0)**
This course focuses on current global environmental issues including environmental pollution, climate change, energy and sustainability. It also discusses the interactions between human behavior and environment crisis, studies the impact of global environmental issues, and evaluates the prospect of changing lifestyle for promoting sustainable development. Prerequisite: Sophomore standing or higher.

EVEN 3320 Chemical Principles for EVEN **3 SCH (3-0)**
Fundamental chemical principles for determination of the source, fate, and transformation of chemical compounds in natural and polluted environments. Climate change, air pollution, stratospheric ozone depletion, pollution and treatment of water sources, and the utilization of insecticides and herbicides. Prerequisite: CHEM 1312, CHEM 1112.

EVEN 3321 Environmental Engineering Lab **3 SCH (0-1-0-4)**
Overview of contaminant transport and partitioning processes, chemical processes, biological processes, and particle dynamics and separations processes. Design and performance of experiments to generate data for environmental engineering design. Statistical analyses and interpretation of experimental data. Prerequisites: CHEM 1312/CHEM 1112.
Fee: $30.00

EVEN 3328 Environ Engi Process Fundamntl **3 SCH (3-0)**
Physicochemical fundamentals and applications using mass and energy balances for the design of water treatment systems with consideration of water characteristics, reaction kinetics, and process reactors. Fundamental principles are used in environmental engineering processes for water and air quality applications. Prerequisite: EVEN 2310.

EVEN 3336 Environmental Microbiology **3 SCH (3-0)**
Use and control of microorganisms in engineered systems and the effects of microorganisms on the environment and on human activity, health, and welfare. Microbial structure, function, growth, metabolism, and diversity, as well as microbial involvement biogeochemical cycling and in water and waste treatment, waterborne diseases, and pollution control. Prerequisite: CHEM 1311.

EVEN 3399 Nuclear Environment Protection **3 SCH (3-0)**
Nuclear fuel cycle and associated environmental impacts and safety concerns related to nuclear chemistry, nuclear physics, health physics, and environmental engineering. Prerequisite: junior standing.

EVEN 4102 Environ Engineering Design I **1 SCH (1-0-1)**
Application of the scientific, engineering, technical and communications skills to develop engineering alternatives and economics analysis for an environmental engineering design topic. Students will meet one hour per week with an additional hour of recitation period to present ideas and proposal work products to the instructor. Corequisites: CEEN 3392, EVEN 3320, EVEN 3328.

EVEN 4105 Engineering Management **1 SCH (1-0)**
Principles and fundamentals of engineering management and leadership. Prerequisite: junior or senior standing.

EVEN 4301 Water and Wastewater Treatment **3 SCH (3-0)**
Engineering analysis and design of water and wastewater treatment processes. Water quality evaluation; physical, chemical, and biological treatment systems; design of facilities for production of drinking water and treatment. Prerequisites: MATH 3320, EVEN 2310, EVEN 3320.

EVEN 4303 Environ Engr Design II (WI) **3 SCH (3-0)**
The application of environmental engineering principles, including sustainability and economic criteria to a comprehensive air pollution control design problem. Computer software is utilized as a design aid. Prerequisites: EVEN 3320, EVEN 3328, EVEN 4386.

EVEN 4304 Water Res. & Adv. Comp. Meth. **3 SCH (3-0-1)**
Application of advanced computer techniques and methods for numerical analysis and solution of complex environmental engineering problems including geospatial analysis, mathematical model development and numerical solutions to non-linear differential equations, and their applications to water resources problems. Prerequisite: EVEN 2304 or equivalent.

EVEN 4306 Solid & Hazard Waste Fundamntl **3 SCH (3-0)**
Solid and hazardous waste engineering and planning. Landfill technology development and design. Waste to energy concepts and technology development, and resource conservation and recovery perspectives. Prerequisite: Senior standing in engineering

EVEN 4308 Wastewater Treatment **3 SCH (3-0)**
Engineering analysis and design of water and wastewater treatment processes focused principally on biological treatment systems. Water quality evaluation and design and operation of biological and other wastewater treatment systems; design of facilities for wastewater treatment. Prerequisite: Senior standing in engineering.

EVEN 4336 Selected Topics **1-3 SCH (1-3)**
One or more topics of environmental engineering. May be repeated when topic changes. Prerequisite: senior standing.

EVEN 4386 Air Pollution Control **3 SCH (3-0)**
A fundamental approach to air pollutants classification, sources and effects; theories of air quality, air pollution control and atmospheric science; control technologies of particulate and gaseous air pollutants, and process design variables; introduction to air pollution meteorology and dispersion modeling. Prerequisites: Senior standing in engineering. Credit may not be obtained in both CHEN 4386 and EVEN 4386.

EVEN 4399 Internship in Env. Engineering **1-3 SCH (1-3)**
Internships in industry, government or consulting companies, designed to broaden the skills obtained through curricular education. Prerequisite: junior or senior standing.