

COURSE SYLLABUS (2 Page)

Course Number: CEGR 3141
Course Name: Introduction to Environmental Engineering

Credits and Contact Hours: 3

Instructor: Olya Keen

Textbook: *Title:* Introduction to Environmental Engineering (5th ed.)
Authors: Davis and Cornwell
Year: 2013

Other Supplemental Materials: Handouts

Catalog Description: Environmental engineering concepts, including stream pollution analysis, water and wastewater treatment processes; solid and hazardous waste management practices; pollution problems and controls; mass balance analyses, and review of pertinent legislation.
Most Recently Offered (Day): Spring 2016, Fall 2015, Summer 2015
Most Recently Offered (Evening): Course has not been offered in 3 years

Pre-Requisites/Co-Requisites: MATH 2171, CHEM 1251, CHEM 1251L, and MEGR 2141 with grades of C or above; CEE major and Junior standing.

Course is: Required (R)

Goals: The objectives for this class are for students to learn to use unit conversions accurately and efficiently, have the ability to apply mass balance principles to real-world systems, be able to analyze and break down common environmental problems in our world, expand the student's knowledge of contemporary environmental problems and look at ways to solve these problems, and learn to think and design with sustainable principles.

Student Outcomes Addressed:

In this course, students will develop the following Student Outcomes:

- A. an ability to apply knowledge of mathematics, science, and engineering
- B. an ability to design and conduct experiments, as well as to analyze and interpret data
- C. an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- F. an understanding of professional and ethical responsibility
- G. an ability to communicate effectively

- H. the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
- I. a recognition of the need for, and an ability to engage in life-long learning
- J. a knowledge of contemporary issues
- K. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

Course Topics:

Nature of environmental problems, a review of chemistry and unit conversion, an introduction to mass balances, reactions and reactors, water treatment, water quality, coagulation and softening, mixing and flocculation, sedimentation, filtration, BOD & DO Sag, reasons for treating wastewater, methods of treating wastewater, introduction to air pollution, air pollutants, plume dispersion, air treatment, solid waste, hazardous waste and risk management, ionizing radiation.