



## CE435–Air Pollution Engineering

**Code and Name:** CE 435–Air Pollution Engineering

**Credit Hours:**3 (Lecture: 3, Tutorial: 1)

**Textbook:**

-Air Pollution: Its Origin and Control by Kenneth W., Cecil F.W., Wayne T. D. , 3rd Ed., Prentice Hall, 1997

**Other References:**

- *Course handouts: distributed on a regular basis to provide more information on the topic.*

**Course Description:**

Description and application of chemical and physical principles related to air pollutants, aerosol mechanics, attenuation of light in the atmosphere, air quality regulation, generation of air pollutants, methods to remove gaseous and particulate pollutants from gas streams, and atmospheric dispersion. Overview of practical and advanced approaches to air pollution modeling, including aspects of pollutant transport, transformation, and loss. Models considered include: Gaussian plume, chemical mass balance, chemical reaction, grid and trajectory. Evaluation of models and the development of efficient control strategies.

**Pre-requisites:** CE 331 Environmental Engineering Processes

**Co-requisites:** None

**Course Learning Outcomes:**

With relation to ABET Student Outcomes (From Fall 2019-SOs: 1-7)

1. Characteristics of physical and chemical air pollutants (1)
2. Sources of physical and chemical air pollutants (1)
3. Modeling of air pollution (1)
4. Design of physical and chemical control technologies (2)
5. State and analyze problems related to air pollution (4)
6. Describe these problems using air modeling approaches (1)
7. Recognize control technologies for physical and chemical air pollutants (4)

**Topics to be covered:**

- Physical and chemical principles related to pollutants
- Aerosol mechanics
- Attenuation of light in the atmosphere
- Air quality regulations
- Generation of air pollutants, and control technologies
- Air pollution modeling including various aspects
- Chemical mass balance, chemical reaction

**Grading Policy:**

The grading for the course is: 60% coursework and 40% Final Exam. The course work consists of two Midterm Exams, where each midterm exam is worth 20%. It also includes quizzes, and/or projects for the remaining 20% that is modified by the course instructor.

