

**Course Number: 28384**

**Course Name: Advanced Air Pollution Modelling**

Course Type: Theory
Prerequisite:
Level: Graduate and Undergraduate
Group: Energy Conversion

Type & Max Unit: Constant 3
Corequisite:
First Presentation:
Last Edition:

**Objectives:**

This course provides an understanding of the theory and practice of using dispersion models to replicate the behavior of pollution in the atmosphere. The course will explain the rationale behind air quality modelling using examples of particular models to describe the ways in which they are used and highlight some of the potential limitations and problems associated with them.

The course also provides a basic introduction to model input data, the basic principles and assumptions involved and the concepts of model validation, verification and adjustment.

**Topics:**

- **Fundamentals of Air Quality Modeling**
- **Meteorology of Air Quality modeling**
- **Advanced Meteorological Modeling**
- **Classification of Air Quality Models**
  - 1) Eulerian and Lagrangian Models
  - 2) Guassian Model
  - 3) Recommended Models
  - 4) Photochemical Models
  - 5) Radioactive models
  - 6) Statistical Models
  - 7) Chemical Mass Balance Model
- **Installation of selected models on Windows and Linux**

**References:**

1. Seinfeld, John H. Pandis, Spyros N. **Atmospheric Chemistry and Physics from Air Pollution to Climate Change**
2. <http://www.mmm.ucar.edu/wrf/>
3. <http://www.epa.gov/scram001/>
4. <http://www.cmaq-model.org/>