1. ME 5113, Aerosol/Particle Engineering

2. 4 credits, 4 contact hours.

3. Instructors: D. Pui


5. Specific Course Information:
   a. Catalog description: Kinetic theory, definition, theory and measurement of particle properties, elementary particle mechanics, particle statistics; Brownian motion and diffusion, coagulation, evaporation and condensation, sampling and transport.
   b. Prerequisites: ME 3331, CSE upper division or grad student.
   c. Elective for ME students.

6. Course outcomes (related ABET student outcomes indicated in square brackets):
   a. An understanding of aerosol behavior and properties as applied to air pollution, health and industry. [1,4]
   b. An ability to apply the principles of aerosol mechanics to the separation, classification and Brownian diffusion of particles. [1]
   c. An ability to apply the principles of coagulation, evaporation, condensation and ionic charging to study mass transfer phenomena in aerosol systems. [1]
   d. An ability to select and interpret information required to design and analyze industrial aerosol problems. [1,2,4,6]

7. Course topics:
   a. Introduction and elementary concepts
   b. Kinetic theory of gases
   c. Particle mechanics
   d. Inertial separation
   e. Particle statistics
   f. Brownian motion and diffusion
   g. Coagulation
   h. Evaporation and condensation
   i. Electrical properties
   j. Aerosol sampling and transport