

### **ME 603 Radiative Heat Transfer in Participating Media (3-0-0-6)**

Fundamentals of thermal radiation; Review of surface radiation- Radiative properties of real surfaces, View factors ; Radiative exchange between gray, diffuse surfaces; The equation of radiative heat transfer in participating media; Radiative properties of molecular gases and particulate media; Exact solutions of one-dimensional gray media; Approximate solution methods for one-dimensional media; Zone method; Spherical harmonics method; Discrete ordinate method; Discrete transfer method; Monte Carlo method; Finite volume method. Radiation combined with conduction and convection.

#### *Textsbooks*

- [1] M. F. Modest, *Radiative Heat Transfer*, McGraw-Hill, 1993.
- [2] R. Siegel and J. R. Howell, *Thermal Radiation Heat Transfer*, 3rd ed, Taylor and Francis, 1992.