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## ME 283 (JAN) 3:0

### Two Phase Flow and Boiling Heat Transfer

**Instructor(s):** Gaurav Tomar, Susmita Dash

**Course description:**

Characterization of two phase flow patterns (bubbly, slug, annular, mist, stratified, etc), homogeneous and heterogeneous flow models, suspension of particles in fluids, particulate fluidization, Bubble dynamics, Rayleigh-Plesset Equation, Boiling and Condensation Heat Transfer, Homogeneous and heterogeneous nucleation, Hydrodynamic stability of stratified fluids, molecular theory of surface tension, contact line dynamics, dewetting pathways.

**Prerequisites:**

**Resources:**

1. Graham B Wallis, "One dimensional two phase flow", McGraw Hill, 1969
2. R T Knapp, J W Daily, F G Hammit, "Cavitation", McGraw Hill, 1970
3. R Clift, J R Grace and M E Weber, "Bubbles, drops and particles", Dover, 1978
4. P de Gennes, F Brochard-Wyart and D Qu  r  , "Capillarity and wetting phenomena", Springer, 2004
5. V P Carey, "Liquid-Vapor Phase-Change Phenomena", Hemisphere Pub. Corp., 1992

**Outcomes:**

**Additional information:**

**Course website:**