

### **ME 659 Tribology of Bearings (3-0-0-6)**

Introduction, Properties and Testing of Lubricants, Basic Equations, Idealized Hydrodynamic Bearings. Finite Bearings, Oil Flow and Thermal equilibrium, Bearing Design, Squeeze Film bearings, Hydrodynamic Instability. Externally pressurized Oil Bearings. Gas-lubricated Bearings. Elastohydrodynamic Lubrication, Surface Roughness Effect on Hydrodynamic Bearings and Elastohydrodynamic Line contacts. Ball Bearings, Roller Bearings. Friction of Metals. Wear of Metals.

#### *Textsbooks:*

- [1] B C Majumdar, 1999, "*Introduction to Tribology of Bearings*", A. H. Wheeler & Co. Ltd., New Delhi.
- [2] Pinkus, O. and Sternlicht, B., 1961, "*Theory of hydrodynamic lubrication*", Mc Graw Hill Book Co. Inc., New York.
- [3] A Cameron and C.M. Mc Ettles, 1987, "*Basic Lubrication Theory*", Wiley Eastern Ltd., New Delhi.