PME7J002 TRIBOLOGY

(PROFESSIONAL ELECTIVE)

MODULE - I (12 HOURS)

Introduction : Lubricant and lubrication, Types of bearings, properties and testing of lubricants,
Basic equations: Generalized Reynolds equation, Flow and Shear Stress, Energy equation, Equation of state
Hydro dynamic lubrication :
Mechanism of pressure development and load carrying capacity, Plane-slider bearing, Idealized slider bearing with a pivoted shoe, Step bearing, Idealized journal bearing. – infinitely long journal bearing, Petroffs equation for a lightly loaded bearing, narrow bearing,

MODULE - II (11 HOURS)

Oil flow and thermal equilibrium - Heat balance of lubricants
Hydrostatic Bearing **:**
Principles, Component of hydrostatic lubrication , Hydrostatic circular thrust bearing , calculation of pressure, load carrying capacity, flow rate , power loss in bearing due to friction.

MODULE - III (12 HOURS)

Concept of gas lubricated bearing
Concept of Elastohydrodynamic lubrication, Design and selection of antifiction bearing
Friction and wear of metals :
Theories of friction, surface contaminants, Effect of sliding speed on friction, classification and mechanism of wear, Wear resistant materials.

TEXT BOOKS

1. Introduction to Tribology of Bearing , B.C .Majumdar , S. Chand & Co

REFERENCE BOOKS

1. Fundamentals of Tribiology , Basu S K., Sengupta A N., Ahuja B. B., , PHI 2006
2. Basic Lubrication theory, A. Cameron, John Wiley & sons
3. Lubrication Fundamentals, D.M.Pirro and A.A.Wessol, CRC Press
4. Theory and Practice of Lubrication for Engineers**,** Fuller, D., New York company 1998
5. Principles and Applications of Tribiology**,** Moore, Pergamaon press 1998
6. Tribiology in Industries**,** Srivastava S., S Chand and Company limited, Delhi 2002
7. Lubrication of bearings – Theoretical Principles and Design**,** Redzimovskay E I., Oxford press company 2000