5th Semester	RME5D003	Tribology	L-T-P 3-0-0	3 Credits

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, Equationof stateHydro dynamic lubrication :Mechanism of pressure development and load carrying capacity, Plane-slider bearing, Idealizedslider bearing with a pivoted shoe, Step bearing, Idealized journal bearing. – infinitely long journalbearing, Petroffs equation for a lightly loaded bearing, narrow bearing,

MODULE - II **(11 HOURS)**

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

MODULE - III **(12 HOURS)**

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

Books :

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