SUBJECT NO-ME60404, SUBJECT NAME- Lubrication and Rotor Dynamics

LTP- 3-1-0,CRD- 4

SYLLABUS :-

Introduction: Rotating machinery, Technology of friction control and wear prevention in rotating machinery, Properties and testing of lubricants. Bearing Systems: Rolling element bearings, Hydrodynamic oil-journal bearings, Gas lubricated bearings, Hydrostatic bearings and Squeeze film bearings Rotor Dynamics: Single degree of freedom system, Multi degree of freedom system, Shaft with central disc, Shaft with non central disc Rotor-bearing systems: Rotor supported on rolling element bearings, rotor supported on oil journal bearings, stability analysis (rigid rotor, flexible rotor), Rotor with several bearings and discs (FEM): Equation of motion with Rigid masses, Beam elements and Bearing supports, Modelling of Internal damping, Drive-Rotor interactions, Natural vibration and forced vibration studies. Measurement and diagnostics in rotating machinery: Signal measurement and processing, fault prediction such as unbalance, misalignment, rubbing, bending, loose components, rotor crack and bearing faults.