

PCME4306 **DESIGN OF MACHINE COMPONENTS** (3-0-0)

Module I

(12 hours)

1. Review of axial, bending and torsional stresses in machine parts; Theories of Failure, Applications in practical problems.
2. Variables stresses (Fatigue), Endurance limit, S - N curve, Fatigue stress concentration factor, Goodman, Gerber and Soderberg criteria, Application to design and practical problems.
3. Design of Pressure vessels : Thin cylindrical and spherical shells, Design of end closures, Thick cylindrical shells, Application to practical problems.

Module II

(12 hours)

- 4 Design of clutch: Friction clutch, Cone clutch and Centrifugal clutch,
5. Design of Brake : Block & Band brake, Internal expanding shoe brake.
6. Design of sliding contact bearings, Journal bearing, foot step bearing
7. Types and selection of ball and roller bearings, Dynamic and static load ratings, Bearing life, Problem illustration.

Module III

(12 hours)

8. Design of straight and Helical spur gears, bevel gears.
9. Design of Engine components : Piston, Connecting Rod, Crank Shaft, Flywheel, Illustrative problems with solutions.

DESIGN DATA HAND BOOKS:

1. Design Hand Book by S.M.Jalaluddin ; Anuradha Agencies Publications
2. P.S.G.Design Data Hand Book, PSG College of Tech Coimbatore
3. Machine Design Data Book, K.Lingaiah, Tata Mcgraw Hill

TEXT BOOKS:

1. A Text Book of Machine Design, R.S.Khurmi and J.K.Gupta, S.Chand Publication, 14th Edn,
2. Design of Machine Elements, V.B. Bhandari, Tata McGraw Hill Publishing Company Ltd., New Delhi, 3rd Edn

REFERENCE BOOKS:

1. Mechanical Engineering Design, J.E.Shigley, C.R.Mischke, R.G.Budynas and K.J.Nisbett, TMH
2. Design of Machine Elements, M.F.Spotts,
3. Machine Design, P.C.Sharma and D.K.Agrawal, S.K.Kataria & Sons
4. Machine Design, Robert L. Norton, Pearson Education Asia, 2001.
5. Fundamentals of Machine Component Design, Robert C. Juvinall and Kurt M Marshek, Wiley India Pvt. Ltd., New Delhi, 3rd Edition, 2007
6. Machine Design, P.Kanaiah, Sciotech Publications