7th Semester	RME7D003	Design of Machine Components	L-T-P 3-0-0	3 Credits

Module-I: **(10 hours)**

Design of Pressure vessels: Thin pressure vessels: cylindrical and spherical vessels,Design of end Closures, Thick cylindrical shells.

Design of Lever: Classification, Design of levers, Cranked lever, Lever of safety - valve.

Module-II: **(10 hours)**

Design of belt drive and power screw: Design of belt drive and pulley, Power screwdesign with square thread such as screw jack.

Design of clutch and brake: Friction clutch, Cone clutch and Centrifugal clutch, Blockbrake, Band brake, Internal expanding shoe brake.

Module-III: **(10 hours)**

Gears: Design of Spur, Helical, bevel and worm gears. **Flywheel:** Design of Flywheel.

Module-IV: **(12 hours)**

Design of I.C. Engine components: Design of Cylinder, Piston, Connecting Rod, CrankShaft.

Introduction to Finite Element Method: FEM fundamental concepts, Procedure of FEM,Finite Element Modeling of one-dimensional problems. Finite Element Analysis of 2-Dproblems: Shape function, Strain Displacement Relation, Element Characteristics Matrix.

Books:
[1]   Design of Machine Elements, V.B. Bhandari, Tata McGraw Hill
[2]   Design of Machine Elements by C. S. Sharma and K. Purohit, PHI
[3]   Mechanical Engineering Design, J.E.Shigley, C.R.Mischke, R.G.Budynas and
        K.J.Nisbett, TMH
[4]   Machine Design, P.Kanaiah, Scietech Publications
[5]   Fundamentals of Machine Component Design by R.C.Juvinall and K.M.Marshek,
        John Wiley & Sons
[6]   Machine Drawing by N.Sidheswar, McGraw-Hill
[7]   Machine Design, P.C.Sharma and D.K.Agrawal, S.K.Kataria& Sons
[8]   Machine Design, Pandya and Shah, Charotar Book Stall
[9]   Machine Design, Robert L. Norton, Pearson Education Asia.

Design Hand Book:

1. P.S.G. Design Data Hand Book, PSG College of Tech Coimbature
2. Design Data Hand Book, K. Lingaiah, McGraw Hill, 2nd Ed. 2003.
3. Design Hand Book by S.M.Jalaluddin ; Anuradha Agencies Publications
4. Design Data Hand Book by K.Mahadevan and B.Reddy,CBS Publishers