

MEPC2005 DESIGN OF MACHINE ELEMENTS-I (3-0-0)

Module–I: (6hrs)

Mechanical Engineering design: Introduction to design procedure, Stages in design, Code and Standardization, Interchangeability, Preferred numbers, Fits and Tolerances, Factor of safety concept, Engineering materials: Ferrous, Non-ferrous, design requirements – Properties of Materials, Material selection, Use of Data books.

Module–II: (6 hrs)

Machine Element Design: Design of Joints: Rivets, Welds and threaded fasteners based on different types of loading, Boiler joints, cotter joints and knuckle joints.

Module–III: (6hrs)

Design of Keys, Shaft and Couplings: Classification of keys and pins, Design of keys and pins, Design of shafts: based on strength, torsional rigidity and fluctuating load, ASME code for shaft design, Design of couplings: Rigid coupling, Flexible coupling.

Module–IV: (6hrs)

Design of Mechanical Springs: Types of helical springs, Design of Helical springs, bulking of spring, spring surge, end condition of springs, Design of leaf springs: nipping.

Module–V: (6hrs)

Bearings: Types and selection of ball and roller bearings, Dynamic and static load ratings, Bearing life, Design of sliding contact bearings, Journal bearing, foot step bearing.

TEXTBOOKS:

1. Mechanical Engineering Design, J.E.Shigley, C.R.Mischke, R.G.Budynas and K.J.Nisbett, TMH.
2. Design of Machine Elements, V.B.Bhandari, Tata McGraw Hill

REFERENCEBOOKS:

1. Machine Design, P.Kanaiah, Scitech Publications
2. Fundamentals of Machine Component Design by R.C.Juvinall and K.M.Marshek, John Wiley & Sons
3. Machine Design, P.C.Sharma and D.K.Agrawal, S.K.Kataria & Sons
4. Machine Design, Pandya and Shah, Charotar Book Stall
5. Machine Design, Robert L.Norton, Pearson Education Asia.

DESIGN DATA HANDBOOKS:

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. Design Data HandBook, K.Lingaiah, McGrawHill, 2ndEd. 2003.
4. Design Data Hand Book by K.Mahadevan and B.Reddy, CBS Publishers