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| Year & Sem: | Course Code: | Course Name: Design of Machine Elements II | No. of Credits: 4 | L | T&PS | P |
| E2S2 | ME2203 | | | 2 | 2 | 0 |

UNIT I: Curved Beams: Stresses in curved beams of standard cross sections used in crane hook, punching presses & clamps, closed rings and links. Cylinders & Cylinder Heads: Review of Lamé's Equations; compound cylinders, stresses due to different types of fits, cylinder heads, flats.

UNIT II: Springs: Types of springs - stresses in Helical coil springs of circular and non-circular cross sections. Tension and compression springs, springs under fluctuating loads, – Energy stored in springs, Torsion, Belleville and Rubber springs. Leaf Springs: Stresses in leaf springs. Equalized stresses,

UNIT III: Spur & Helical Gears: Spur Gears: Definitions, stresses in gear tooth: Lewis equation and form factor, Design for strength, Dynamic load and wear load. Helical Gears: Definitions, formative number of teeth, Design based on strength, dynamic and wear loads.

UNIT IV: Bevel and Worm Gears: Bevel Gears: Definitions, formative number of teeth, Design based on strength, dynamic and wear loads. Worm Gears: Definitions, Design based on strength, dynamic, wear loads and efficiency of worm gear drives.

UNIT V: Clutches & Brakes: Design of Clutches: Single plate, multi plate and cone clutches. Design of Brakes: Block and Band brakes: Self locking of brakes: Heat generation in Brakes

UNIT VI:
Lubrication and Bearings: Lubricants and their properties, Mechanisms of Lubrication, Bearing modulus, coefficient of friction, minimum oil film thickness, Heat Generated, Heat dissipated, Bearing Materials, Examples of journal bearing and thrust bearing design. Belts, Ropes and Chains: Flat belts: Length & cross section, Selection of V-belts, ropes and chains for different applications

References/Text Books:

1. Mechanical Engineering Design: Joseph E. Shigley and Charles R. Mischke. McGraw Hill International Edition,
2. Design of Machine Elements: V.B. Bhandari, Tata McGraw Hill Publishing Company Ltd., New Delhi
3. Machine Design: Robert L. Norton, Pearson Education Asia, II00I.
4. Machine Design: Hall, Holowenko, Laughlin (Schaum's Outlines series) Adapted by S. K. Somani, Tata McGraw Hill Publishing Company Ltd., New Delhi, Special Indian Edition, II008.
5. Machine Design: A CAD Approach: Andrew D Dimarogonas, John Wiley Sons, Inc, II00I.

Lecture Plan: Unit-I & -II syllabus for MID-I, Unit-III & -IV syllabus for MID-II and Unit-V & -VI syllabus for MID-III examinations.