

DESIGN OF MACHINE ELEMENTS – II

Written by Administrator
Sunday, 01 November 2009 10:54 -

Subject Code

:

06ME61

IA Marks

:

25

No. of Lecture Hrs./ Week

:

04

Exam Hours

:

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03

Total No. of Lecture Hrs.

:

52

Exam Marks

:

100

PART - A

Unit - 1

Curved Beams: Stresses in curved beams of standard cross sections used in crane hook, punching presses & clamps, closed rings and links.

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5 Hours

Unit - 2

Cylinders & Cylinder Heads: Review of Lamé's Equations; compound cylinders, stresses due to different types of fits, cylinder heads, flats.

5 Hours

Unit - 3

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,

8 Hours

Unit - 4

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,

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formative number of teeth, Design based on strength, dynamic and wear loads.

8 Hours

PART - B

Unit - 5

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.

7 Hours

Unit - 6

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.

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7 Hours

Unit - 7

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.

7 Hours

Unit - 8

Belts, Ropes and Chains: Flat belts: Length & cross section, Selection of V-belts, ropes and chains for different applications.

5 Hours

Design Data Hand Books:

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1. **Design Data Hand Book**, K. Lingaiah, McGraw Hill, 2nd Ed. 2003.
2. **Design Data Hand Book**, K. Mahadevan and K. Balaveera Reddy, CBS Publication
3. **Machine Design Data Hand Book**, H. G. Patil, Shri Shashi Prakashan, Belgaum.
4. **P.S.G. Design Data Hand Book-PSG College of Tech Coimbatore**

Text Books:

1. **Mechanical Engineering Design:** Joseph E. Shigley and Charles R. Mischke. McGraw Hill International Edition, 6th Edition 2003.
2. **Design of Machine Elements:** V.B. Bhandari, Tata McGraw Hill Publishing Company Ltd., New Delhi, 2nd Edition 2007.

Reference Books:

1. **Machine Design:** Robert L. Norton, Pearson Education Asia, 2001.
2. **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, 2008.
3. **Machine Design:** A CAD Approach: Andrew D Dimarogonas, John Wiley Sons, Inc, 2001.