

## SYLLABUS FOR DESIGN OF MACHINE ELEMENTS - II

Sub Code : 06ME61  
Hrs/Week : 04  
Total Hrs. : 52

IA Marks : 25  
Exam Hours : 03  
Exam Marks : 100

### PART - A

#### UNIT - 1

**CURVED BEAMS** : Stresses in curved beams of standard cross sections used in crane hook, punching presses and clamps, closed rings and links. **5 Hrs**

#### UNIT - 2

**CYLINDERS AND CYLINDER HEADS** : Review of Lame's Equations; compound cylinders, stress due to different types of fits, cylinder heads, flats. **5 Hrs**

#### 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 Hrs**

#### UNIT - 4

**SPUR AND 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. **8 Hrs**

### 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 Hrs**

#### UNIT - 6

**CLUTCHES AND 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. **7 Hrs**

#### 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 Hrs**

#### UNIT - 8

**BELTS ROPES AND CHAINS** : Flat belts : Length and cross section, Selection of V-belts, ropes and chains for different applications. **5 Hrs**

# CONTENTS

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## 1. DESIGN OF CURVED BEAMS 1 - 65

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1.1 Curved Beam; 1.2 Stresses in Curved Beam

**Review Questions** 62

**Exercises** 62

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## 2. CYLINDERS AND CYLINDER HEADS 66 - 124

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2.1 Introduction; 2.2 Stresses in a thin cylinder; 2.3 Stress in a thin spherical vessel; 2.4 Change in dimensions of a thin cylinder due to an internal pressure; 2.5 Change in dimensions of a thin spherical vessel due to an internal pressure; 2.6 Thick cylinders; 2.7 Lamé's theory; 2.8 Stresses in a thick cylinder; 2.9 Wall thickness of cylinder; 2.10 Compound cylinder; 2.11 Stresses in compound cylinder; 2.12 cylinder heads and cover plates

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## 3. DESIGN OF SPRINGS 125 - 219

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3.1 Introduction; 3.2 Types of springs; 3.3 Terms used in compression springs; 3.4 Spring materials; 3.5 Stress in helical springs of circular wire; 3.6 Deflection of helical spring of circular cross section wire; 3.7 Eccentric loading of springs; 3.8 Surge in springs; 3.9 Expression for strain energy stored in a body when the load is applied gradually; 3.10 Symbols used in helical compression spring; 3.11 Design of helical springs; 3.12 Design procedure for helical compression spring of circular cross-section; 3.13 End condition; 3.14 Helical springs of non-circular cross-sections; 3.15 Leaf spring; 3.16 Leaf spring construction; 3.17 Design of leaf springs; 3.18 Equalised stress in spring leaves (nipping); 3.19 Helical torsion spring; 3.20 Belleville springs; 3.21 Rubber springs; 3.22 Combination of springs; 3.23 Springs subjected to fatigue loading; 3.24 Tension spring

**Review Questions** 215

**Exercises** 216

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**4. DESIGN OF SPUR AND HELICAL GEARS****220 - 322**

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4.1 Introduction; 4.2 Classification; 4.3 spur gear; 4.4 Law of Gearing or Condition for correct Gearing; 4.5 Interference and methods to avoid Interference; 4.6 Profile; 4.7 Internal and External Spur gear; 4.8 Systems of gear teeth; 4.9 Beam strength of spur gear teeth or Lewis equation; 4.10 Dynamic tooth load; 4.11 design for wear; 4.12 Endurance strength; 4.13 Selection of material; 4.14 Design considerations; 4.15 Helical gears; 4.16 Double Helical gear; 4.17 Helical gear forces; 4.18 Virtual or formative or equivalent number of teeth; 4.19 Beam strength of helical gears; 4.20 Dynamic load; 4.21 Endurance strength

**Review Questions** **319**

**Exercises** **319**

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**5. BEVEL AND WORM GEARS****323 - 392**

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5.1 Bevel gears; 5.2 Formative or virtual or equivalent number of teeth; 5.3 Beam strength of bevel gears; 5.4 Dynamic load; 5.5 Wear load; 5.6 Straight tooth bevel gear forces; 5.7 Procedural steps for the design of bevel gear; 5.8 Worm Gear; 5.9 Strength of worm gear; 5.10 Dynamic load; 5.11 Endurance strength; 5.12 Wear load; 5.13 Efficiency of worm gearing; 5.14 Thermal Rating of worm gearing; 5.15 Terminology of worm gears; 5.16 AGMA power rating equations; 5.17 Self locking in worm gearing; 5.18 Worm Gear Forces

**Review Questions** **391**

**Exercises** **391**

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**6. DESIGN OF CLUTCHES AND BRAKES****393 - 496**

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6.1 Clutch; 6.2 Single plate Clutch; 6.3 Multi-plate clutch; 6.4 Torque transmitted by disc or plate clutch ; 6.5 Friction materials; 6.6 Design procedure; 6.7 Cone clutch; 6.8 Merits and demerits of cone clutch; 6.9 Torque transmitted by cone clutch; 6.10 Procedural steps for cone clutch; 6.11 Centrifugal clutch; 6.12 Torque transmitted by centrifugal clutch; 6.13 Brakes; 6.14 Energy to be dissipated; 6.15 Heating of brakes; 6.16 Block or shoe brake; 6.17 Design considerations for block brake; 6.18 Double shoe or

block brakes; 6.19 Procedural steps for the design of double shoe brake; 6.20 Band brake; 6.21 Simple band brake; 6.22 Procedural steps for the design of simple band brake; 6.23 Differential band brake; 6.24 Band and block brake; 6.25 Internal expanding shoe brake

**Review Questions** 490

**Exercises** 490

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**7. LUBRICATION AND BEARINGS** 497 - 569

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7.1 Lubrication; 7.2 Types of lubricant; 7.3 Properties of lubricant; 7.4 Selection of lubricant; 7.5 Purpose of lubrication; 7.6 Requirement of good lubricant; 7.7 Bearings ; 7.8 Types of bearings; 7.9 Classification of bearings; 7.10 Hydrodynamic theory of lubrication; 7.11 Bearing characteristic number and bearing modulus for journal bearing; 7.12 Sommerfeld number : (S); 7.13 Terms used in hydrodynamic journal bearing; 7.14 Petroff's equation; 7.15 Coefficient of friction by Mckee; 7.16 Bearing materials; 7.17 procedural steps for the design of journal bearing; 7.18 Thrust bearing

**Review Questions** 566

**Exercises** 567

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**8. DESIGN OF BELTS, ROPES AND CHAINS** 570 - 638

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8.1 Introduction; 8.2 Flat belt drive; 8.3 V-belt Drive; 8.4 Rope drives; 8.5 Chain drive

**Exercises** 635

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**VTU QUESTION PAPERS** 639 - 654

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