

Lesson Plan for DESIGN OF MACHINE ELEMENT, 5th Sem. Mechanical Engg. (2021-2022)

Discipline: Mechanical Engg

Semester: 5th

Name of the Teaching Faculty: B.SIVA SANKAR ACHARYA

Subject:DME

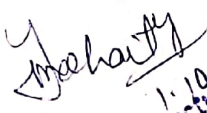
No. of Days/
week class
allotted=4

Semester From Date: 1.10.2021

To date : 18.1.2022

| WEEK | PERIOD | TOPICS TO BE COVERED |
|------|--------|---|
| 01 | 01 | INTRODUCTION TO SUBJECT |
| | 02 | Introduction to Machine Design and Classify it. |
| | 03 | Different mechanical engineering materials used in design with their uses and their mechanical and physical properties. |
| | 04 | Define working stress, yield stress, ultimate stress & factor of safety and stress-strain curve for M.S & C.I. |
| 02 | 01 | Modes of Failure (By elastic deflection, general yielding & fracture) |
| | 02 | State the factors governing the design of machine elements. |
| | 03 | Describe design procedure. |
| | 04 | Design of fastening elements Joints and their classification. |
| 03 | 01 | State types of welded joints |
| | 02 | State advantages of welded joints over other joints Review of chapter-I |
| | 03 | Design of welded joints for eccentric loads. |
| | 04 | State types of riveted joints and types of rivets |
| 04 | 01 | Describe failure of riveted joints. |
| | 02 | Determine strength & efficiency of riveted joints. |
| | 03 | Design riveted joints for pressure vessel. |
| | 04 | Solve numerical on Welded Joint and Riveted Joints. |
| 05 | 01 | Solve numerical on Welded Joint and Riveted Joints. |
| | 02 | Solve numerical on Welded Joint and Riveted Joints. |
| | 03 | Solve numerical on Welded Joint and Riveted Joints. |
| | 04 | Design of shafts and Keys State function of shafts. |
| 06 | 01 | Design solid & hollow shafts to transmit a given power at given rpm based on a) Strength: (i) Shear stress, (ii) Combined bending tension; |
| | 02 | Design solid & hollow shafts to transmit a given power at given rpm based on a) Strength: (i) Shear stress, (ii) Combined bending tension; |
| | 03 | Design solid & hollow shafts to transmit a given power at given rpm based on b) Rigidity: (i) Angle of twist, (ii) Deflection, (iii) Modulus of rigidity |
| | 04 | Design solid & hollow shafts to transmit a given power at given rpm based on b) Rigidity: (i) Angle of twist, (ii) Deflection, (iii) Modulus of rigidity |
| 07 | 01 | State standard size of shaft as per I.S. |
| | 02 | NUMERICALS |
| | 03 | State function of keys, types of keys & material of keys |
| | 04 | Describe failure of key, effect of key way. |

| | | |
|----|----|---|
| | 01 | Design rectangular sunk key considering its failure against shear & crushing. |
| | 02 | Design rectangular sunk key by using empirical relation for given diameter of shaft |
| | 03 | State specification of parallel key, gib-head key, taper key as per I.S. |
| | 04 | Solve numerical on Design of Shaft and keys. |
| 09 | 01 | Solve numerical on Design of Shaft and keys. |
| | 02 | Quiz test |
| | 03 | Design of Coupling Design of Shaft Coupling |
| | 04 | Requirements of a good shaft coupling Types of Coupling. |
| 10 | 01 | Design of Sleeve or Muff-Coupling. |
| | 02 | Design of Clamp or Compression Coupling. |
| | 03 | Solve simple numerical |
| | 04 | Solve simple numerical |
| 11 | 01 | Test |
| | 02 | Design a closed coil helical spring: |
| | 03 | Materials used for helical spring. |
| | 04 | Standard size spring wire. (SWG). |
| 12 | 01 | Terms used in compression spring |
| | 02 | Stress in helical spring of a circular wire. |
| | 03 | Deflection of helical spring of circular wire. |
| | 04 | Surge in spring. |
| 13 | 01 | Solve numerical on design of closed coil helical compression spring. |
| | 02 | Solve numerical on design of closed coil helical compression spring. |
| | 03 | Test |
| | 04 | Test |
| 14 | 01 | REVISION |
| | 02 | REVISION |
| | 04 | Previous year question discussion |
| | 05 | Previous year question discussion |
| 15 | 01 | Model test |
| | 02 | Familiar to data hand book |
| | 03 | Model test |


 1.10.21
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