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| SESSION | WINTER 2022 | | | | |
| BRANCH: | MECHANICAL ENGINEERING | | | | |
| SEMESTER: | 5TH SEC-B | | | | |
| SUBJECT: | Design Of Machine Elements TH-2 | | | | |
| NAME OF THE FACULTY: | K. Das | | | | |
| SL NO. | MONTH | No. of academic days available for the subject | DATE | TOPICS TO BE COVERED | % COVERED |
| 1 | Sep-22 | 10 | 16.09.22 | Introduction to Machine Design and Classify it. | 19% |
| | | | 19.9.22 | Different mechanical engineering materials used in design with their uses and their mechanical and physical properties. | |
| | | | 21.9.22 | Define working stress, yield stress, ultimate stress & factor of safety and stress –strain curve for M.S & C.I. | |
| | | | 22.9.22 | Modes of Failure (By elastic deflection, general yielding & fracture) | |
| | | | 23.9.22 | State the factors governing the design of machine elements. | |
| | | | 24.9.22 | Describe design procedure. | |
| | | | 26.9.22 | Joints and their classification. | |
| | | | 28.9.22 | State types of welded joints | |
| | | | 29.9.22 | State advantages of welded joints over other joints. | |
| | | | 30.9.22 | Design of welded joints for eccentric loads. | |
| | | | 10.10.22 | State types of riveted joints and types of rivets. | |
| | | | 12.10.22 | Describe failure of riveted joints. | |
| | | | 13.10.22 | Determine strength & efficiency of riveted joints. | |
| | | | 14.10.22 | Design riveted joints for pressure vessel. | |
| | | | 15.10.22 | Solve numerical on Welded Joint and Riveted Joints. | |
| | | | 17.10.22 | State function of shafts. | |
| | | | 19.10.22 | State materials for shafts. | |
| | | | 20.10.22 | Design solid & hollow shafts to transmit a given power at given rpm based on<br>a) Strength: (i) Shear stress, (ii) Combined bending tension;<br>b) Rigidity: (i) Angle of twist, (ii) Deflection, (iii) Modulus of rigidity | |

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| 2 | Oct-22 | 15 | 21.10.22 | Design solid & hollow shafts to transmit a given power at given rpm based on<br>a) Strength: (i) Shear stress, (ii) Combined bending tension;<br>b) Rigidity: (i) Angle of twist, (ii) Deflection, (iii) Modulus of rigidity | 28% |
| | | | 22.10.22 | Design solid & hollow shafts to transmit a given power at given rpm based on<br>a) Strength: (i) Shear stress, (ii) Combined bending tension;<br>b) Rigidity: (i) Angle of twist, (ii) Deflection, (iii) Modulus of rigidity | |
| | | | 26.10.22 | Design solid & hollow shafts to transmit a given power at given rpm based on<br>a) Strength: (i) Shear stress, (ii) Combined bending tension;<br>b) Rigidity: (i) Angle of twist, (ii) Deflection, (iii) Modulus of rigidity | |
| | | | 27.10.22 | Design solid & hollow shafts to transmit a given power at given rpm based on<br>a) Strength: (i) Shear stress, (ii) Combined bending tension;<br>b) Rigidity: (i) Angle of twist, (ii) Deflection, (iii) Modulus of rigidity | |
| | | | 28.10.22 | State standard size of shaft as per I.S. | |
| | | | 29.10.22 | State function of keys, types of keys & material of keys. | |
| | | | 31.10.22 | Describe failure of key, effect of key way. | |
| 3 | Nov-22 | 15 | 2.11.22 | Design rectangular sunk key considering its failure against shear & crushing. | 28% |
| | | | 3.11.22 | Design rectangular sunk key considering its failure against shear & crushing. | |
| | | | 4.11.22 | Design rectangular sunk key by using empirical relation for given diameter of shaft. | |
| | | | 5.11.22 | State specification of parallel key, gib-head key, taper key as per I.S. | |
| | | | 9.11.22 | Solve numerical on Design of Shaft and keys. | |
| | | | 10.11.22 | Solve numerical on Design of Shaft and keys. | |
| | | | 11.11.22 | Solve numerical on Design of Shaft and keys. | |
| | | | 12.11.22 | Design of Shaft Coupling | |
| | | | 21.11.22 | Design of Shaft Coupling | |
| | | | 23.11.22 | Requirements of a good shaft coupling | |
| | | | 24.11.22 | Types of Coupling | |
| | | | 25.11.22 | Design of Sleeve or Muff-Coupling. | |
| | | | 26.11.22 | Design of Clamp or Compression Coupling | |
| | | | 28.11.22 | Solve simple numerical on above. | |

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| | | | 30.11.22 | Solve simple numerical on above. | |
| 4 | Dec-22 | 13 | 1.12.22 | Solve simple numerical on above. | 25% |
| | | | 2.12.22 | Materials used for helical spring. | |
| | | | 3.12.22 | Standard size spring wire. (SWG). | |
| | | | 5.12.22 | Terms used in compression spring. | |
| | | | 7.12.22 | Stress in helical spring of a circular wire. | |
| | | | 8.12.22 | Deflection of helical spring of circular wire. | |
| | | | 9.12.22 | Surge in spring. | |
| | | | 10.12.22 | Solve numerical on design of closed coil helical compression spring. | |
| | | | 12.12.22 | Solve numerical on design of closed coil helical compression spring. | |
| | | | 14.12.22 | Solve numerical on design of closed coil helical compression spring. | |
| | | | 15.12.22 | REVISION | |
| | | | 16.12.22 | REVISION | |
| | | | 17.12.22 | REVISION | |

Kishore Das
Signature of Lect

SIGNATURE OF H.O.D. (MECHANICAL)

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| SESSION | WINTER 2022 | | | | |
| BRANCH | MECHANICAL ENGINEERING | | | | |
| SEMEST | 5TH SEC- A | | | | |
| SUBJECT | DESIGN OF MACHINE ELEMENTS (TH-02) | | | | |
| NAME OF THE FACULTY: | | | S PANDA | | |
| SL NO. | MONTH | No. of academic days available for | DATE | TOPICS TO BE COVERED | % COVERED |
| 1 | Sep-22 | 9 | 20.9.22 | 1.1 Introduction to Machine Design and Classify it. | 17% |
| | | | 21.9.22 | 1.2 Different mechanical engineering materials used in design with their uses and their mechanical and physical properties. | |
| | | | 22.9.22 | 1.3 Define working stress, yield stress, ultimate stress & factor of safety and stress –strain curve for M.S & C.I. | |
| | | | 23.9.22 | 1.4 Modes of Failure (By elastic deflection, general yielding & fracture) | |
| | | | 24.9.22 | 1.5 State the factors governing the design of machine elements. | |
| | | | 27.9.22 | 1.6 Describe design procedure. | |
| | | | 28.9.22 | 2.1 Joints and their classification. | |
| | | | 29.9.22 | 2.2 State types of welded joints | |
| | | | 30.9.22 | 2.3 State advantages of welded joints over other joints. | |
| 2 | Oct-22 | 15 | 11.10.22 | 2.4 Design of welded joints for eccentric loads. | 28% |
| | | | 12.10.22 | 2.5 State types of riveted joints and types of rivets. | |
| | | | 13.10.22 | 2.6 Describe failure of riveted joints. | |
| | | | 14.10.22 | 2.7 Determine strength & efficiency of riveted joints. | |
| | | | 15.10.22 | 2.8 Design riveted joints for pressure vessel | |
| | | | 18.10.22 | 2.9 Solve numerical on Welded Joint and Riveted Joints. | |
| | | | 19.10.22 | 3.1 State function of shafts. | |
| | | | 20.10.22 | 3.2 State materials for shafts. | |
| | | | 21.10.22 | 3.3 Design solid & hollow shafts to transmit a given power at given rpm based on | |
| | | | 22.10.22 | : (i) Angle of twist, (ii) Deflection, (iii) Modulus of rigidity | |

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| | | | 25.10.22 | Design solid & hollow shafts to transmit a given power at given rpm based on a) Strength: (i) Shear stress, (ii) Combined bending tension; b) Rigidity: (i) Angle of twist, (ii) Deflection, (iii) Modulus of rigidity | |
| | | | 26.10.22 | Design solid & hollow shafts to transmit a given power at given rpm based on a) Strength: (i) Shear stress, (ii) Combined bending tension; b) Rigidity: (i) Angle of twist, (ii) Deflection, (iii) Modulus of rigidity | |
| | | | 27.10.22 | Design solid & hollow shafts to transmit a given power at given rpm based on a) Strength: (i) Shear stress, | |
| | | | 28.10.22 | 3.4 State standard size of shaft as per I.S. | |
| | | | 29.10.22 | 3.5 State function of keys, types of keys & material of keys. | |
| 3 | Nov-22 | 16 | 1.11.22 | 3.6 Describe failure of key, effect of key way. | 30% |
| | | | 2.11.22 | 3.7 Design rectangular sunk key considering its failure against shear & crushing | |
| | | | 3.11.22 | Design rectangular sunk key considering its failure against shear & crushing | |
| | | | 4.11.22 | 3.8 Design rectangular sunk key by using empirical relation for given diameter of shaft | |
| | | | 5.11.22 | 3.9 State specification of parallel key, gib head key, taper key as per I.S. | |
| | | | 9.11.22 | 3.10 Solve numerical on Design of Shaft and keys. | |
| | | | 10.11.22 | Solve numerical on Design of Shaft and keys. | |
| | | | 11.11.22 | Solve numerical on Design of Shaft and keys | |
| | | | 12.11.22 | 4.1 Design of Shaft Coupling | |
| | | | 22.11.22 | Design of Shaft Coupling | |
| | | | 23.11.22 | 4.2 Requirements of a good shaft coupling | |
| | | | 24.11.22 | 4.3 Types of Coupling | |
| | | | 25.11.22 | 4.4 Design of Sleeve or Muff Coupling. | |
| | | | 26.11.22 | 4.5 Design of Clamp or Compression Coupling | |
| | | | 29.11.22 | 4.6 Solve simple numerical on above. | |
| | | | 30.11.22 | Solve simple numerical on above | |
| | | | 1.12.22 | Solve simple numerical on above | |
| | | | 2.12.22 | 5.1 Materials used for helical spring. | |
| | | | 3.12.22 | 5.2 Standard size spring wire. (SWG). | |
| | | | 6.12.22 | 5.3 Terms used in compression spring | |

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| 4 | Dec-22 | 13 | 7.12.22 | 5.4 Stress in helical spring of a circular wire. | 25% |
| | | | 8.12.22 | 5.5 Deflection of helical spring of circular wire | |
| | | | 9.12.22 | 5.6 Surge in spring | |
| | | | 10.12.22 | 5.7 Solve numerical on design of closed coil helical compression spring. | |
| | | | 13.12.22 | Solve numerical on design of closed coil helical compression spring. | |
| | | | 14.12.22 | Solve numerical on design of closed coil helical compression spring. | |
| | | | 16.12.22 | Solve numerical on design of closed coil helical compression spring. | |
| | | | 15.12.22 | REVISION | |
| | | | 17.12.22 | REVISION | |

SIGNATURE OF LECTURER

13/10/22

SIGNATURE OF H.O.D. (MECHANICAL)