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| Discipline MECHANICAL ENGG | Semester 5TH | Name of the Teaching Faculty: SHARMILA SAGAR |
| Subject STRENGTH OF MATERIALS | No. of days/per week class allotted | Semester From date: 15/09/2022 To Date: 01/01/2023 No. of Weeks |
| Week | Class Day | Theory/Practical Topics |
| 1ST | 1ST | Simple stress & strain Types of load, stresses |
| | 2ND | strains, (Axial and tangential) Hooke's law, |
| | 3RD | Young's modulus, bulk modulus |
| | 4TH | modulus of rigidity, Poisson's ratio, |
| 2ND | 1ST | derive the relation between three elastic constants, |
| | 2ND | derive the relation between three elastic constants, |
| | 3RD | Principle of super position, stresses in composite section |
| | 4TH | Temperature stress, determine the temperature stress in composite bar (single core) |
| 3RD | 1ST | Strain energy and resilience, Stress due to gradually applied, suddenly applied and impact load |
| | 2ND | Simple problems on above |
| | 3RD | Thin cylinder and spherical shell under internal pressure : Definition of hoop stress, strain |
| | 4TH | Define longitudinal stress, strain |
| 4TH | 1ST | Derivation of hoop stress, longitudinal stress |
| | 2ND | Derivation of hoop stress, longitudinal stress |
| | 3RD | Derivation of hoop strain, longitudinal strain |
| | 4TH | Derivation of hoop strain, longitudinal strain, volumetric strain |
| 5TH | 1ST | Computation of the change in length, diameter and volume |
| | 2ND | Computation of the change in length, diameter and volume . numerical |
| | 3RD | Two dimensional stress systems : Determination of normal stress, |
| | 4TH | shear stress and resultant stress on oblique plane |
| 6TH | 1ST | shear stress and resultant stress on oblique plane |
| | 2ND | Location of principal plane and computation of principal stress |
| | 3RD | Location of principal plane and computation of principal stress |
| | 4TH | computation of principal stress |
| 7TH | 1ST | computation of principal stress |
| | 2ND | Location of principal plane and computation of principal stress and Maximum shear stress using Mohr's circle |
| | 3RD | Location of principal plane and computation of principal stress and Maximum shear stress using Mohr's circle |
| | 4TH | Location of principal plane and computation of principal stress and Maximum shear stress using Mohr's circle |
| 8TH | 1ST | Bending moment & shear force Types of beam and load |
| | 2ND | Concepts of Shear force and bending moment |
| | 3RD | Shear Force and Bending moment diagram cantilever beam carrying point load |
| | 4TH | Shear Force and Bending moment diagram cantilever beam carrying udl |
| 9TH | 1ST | Shear Force and Bending moment diagram of simply supported beam under point load and uniformly distributed load |
| | 2ND | Shear Force and Bending moment diagram of simply supported beam under point load and uniformly distributed load |
| | 3RD | Shear Force and Bending moment diagram of simply supported beam under |

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| | | point load and uniformly distributed load |
| | 4 TH | Shear Force and Bending moment diagram over hanging beam under point load and uniformly distributed load |
| 10 TH | 1 ST | Shear Force and Bending moment diagram over hanging beam under point load and uniformly distributed load |
| | 2 ND | Shear Force and Bending moment diagram over hanging beam under point load and uniformly distributed load |
| | 3 RD | Theory of simple bending Assumptions in the theory of bending. |
| | 4 TH | Bending equation |
| 11 TH | 1 ST | Bending equation |
| | 2 ND | Moment of resistance |
| | 3 RD | Moment of resistance |
| | 4 TH | Section modulus |
| 12 TH | 1 ST | Section modulus |
| | 2 ND | Definition neutral axis |
| | 3 RD | Solve simple problems |
| | 4 TH | Solve simple problems |
| 13 TH | 1 ST | Combined direct & bending stresses Define column, Axial load, Eccentric load on column |
| | 2 ND | Direct stresses, Bending stresses |
| | 3 RD | Maximum & Minimum stresses |
| | 4 TH | Numerical problems on above |
| 14 TH | 1 ST | Buckling load computation using Euler's formula (no derivation) in Columns with various end conditions |
| | 2 ND | Buckling load computation using Euler's formula (no derivation) in Columns with various end conditions |
| | 3 RD | Torsion Assumption of pure torsion |
| | 4 TH | The torsion equation for solid and hollow circular shaft |
| 15 TH | 1 ST | The torsion equation for solid and hollow circular shaft |
| | 2 ND | The torsion equation for solid and hollow circular shaft |
| | 3 RD | Comparison between solid and hollow shaft subjected to pure torsion |
| | 4 TH | Comparison between solid and hollow shaft subjected to pure torsion |


 15/09/22
 Sharmad Salas