

LESSON PLAN-WINTER-2022
SWAMI VIVEKANANDA SCHOOL OF ENGG & TECH, BBSR

| Discipline- CIVIL DEPARTMENT | Semester-3RD | Name of teaching faculty- SUBHASHREE DAS | | |
|------------------------------|--------------------------------|---|--|--|
| Subject- SM | No class allotted/ per week -5 | SEM From date- No of weeks- 17 | | |
| Week | Class day | Theory Topics | | |
| 3RD | 9/15/2022 | Basic Principle of Mechanics: Force, Moment, support conditions | | |
| | 9/16/2022 | Conditions of equilibrium, C.G & MI, Free body diagram | | |
| 4TH | 9/19/2022 | Conditions of equilibrium, C.G & MI, Free body diagram | | |
| | 9/20/2022 | Review of CG and MI of different sections | | |
| | 9/21/2022 | Review of CG and MI of different sections | | |
| | 9/22/2022 | Simple And Complex Stress, Strain:- Introduction to stresses and strains: Mechanical properties of materials – Rigidity, Elasticity, Plasticity, | | |
| | 9/23/2022 | Introduction to stresses and strains: Mechanical properties of materials – Rigidity, Elasticity, Plasticity, Compressibility | | |
| | 9/24/2022 | Hardness, Toughness, Stiffness, Brittleness, Ductility, Malleability, Creep, Fatigue, Tenacity, | | |
| 5TH | 9/26/2022 | Types of stresses -Tensile, Compressive and Shear stresses | | |
| | 9/27/2022 | Types of strains - Tensile, Compressive and Shear strains | | |
| | 9/28/2022 | Complimentary shear stress - Diagonal tensile / compressive Stresses due to shear | | |
| | 9/29/2022 | Complimentary shear stress - Elongation and Contraction | | |
| | 9/30/2022 | Longitudinal and Lateral strains, Poisson's Ratio, Volumetric strain, | | |
| 1ST | 10/1/2022 | Computation of stress, strain, Poisson's ratio | | |
| 3RD | 10/6/2022 | Change in dimensions and volume etc, Hooke's law - Elastic Constants | | |
| | 10/7/2022 | Derivation of relationship between the elastic constants. | | |
| | 10/8/2022 | Application of simple stress and strain in engineering field:- Behaviour of ductile and brittle materials under direct loads | | |
| | 10/10/2022 | Stress Strain curve of a ductile material, Limit of proportionality, Elastic limit | | |
| | 10/11/2022 | Yield stress, Ultimate stress, Breaking stress, Percentage elongation, Percentage reduction in area, Significance of percentage elongation and | | |
| | 10/12/2022 | Deformation of prismatic bars due to uniaxial load, Deformation of prismatic bars due to its self | | |

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| | 10/13/2022 | Complex stress and strain:- Principal stresses and strains: Occurrence of normal and tangential stresses | | |
| | 10/14/2022 | Concept of Principal stress and Principal Planes | | |
| | 10/15/2022 | Major and minor principal stresses and their orientations | | |
| | 10/17/2022 | Mohr's Circle and its application to solve problems of complex stresses | | |
| | 10/18/2022 | Mohr's Circle and its application to solve problems of complex stresses | | |
| | 10/19/2022 | Stresses In Beams and Shafts:- Stresses in beams due to bending: Bending stress in beams – | | |
| 5TH | 10/20/2022 | Assumptions, Moment of resistance | | |
| | 10/21/2022 | Equation for Flexure, Flexural stress distribution | | |
| | 10/22/2022 | Curvature of beam – Position of N.A. and | | |
| | 10/26/2022 | Significance of Section modulus | | |
| | 10/27/2022 | in beams of rectangular sections symmetrical about vertical axis, Shear stress distribution in beams of circular sections symmetrical about | | |
| | 10/28/2022 | Shear stress distribution in beams of standard sections symmetrical about vertical axis. | | |
| 6TH | 10/29/2022 | Stresses in shafts due to torsion: Concept of torsion. basic assumptions of pure torsion | | |
| 1ST | 10/31/2022 | Torsion of solid and hollow circular sections, | | |
| | 11/1/2022 | Torsional shearing stresses, angle of twist, torsional rigidity. equation of torsion | | |
| | 11/2/2022 | Combined bending and direct stresses: Combination of stresses, Combined direct and | | |
| | 11/3/2022 | Maximum and Minimum stresses in Sections | | |
| | 11/4/2022 | Conditions for no tension, Limit of eccentricity, Middle third/fourth rule. Core or Kern for square | | |
| 2ND | 11/5/2022 | Rectangular and circular sections, chimneys, dams and retaining walls | | |
| | 11/7/2022 | Columns and Struts Columns and Struts, Definition, Short and Long columns, End | | |
| | 11/8/2022 | Equivalent length / Effective length, Slenderness ratio. Axially loaded short and long column | | |
| | 11/9/2022 | Euler's theory of long columns, Critical load for Columns with different end conditions | | |
| | 11/10/2022 | Euler's theory of long columns, Critical load for Columns with different end conditions | | |
| | 11/11/2022 | Shear Force and Bending Moment Types of loads and beams: Types of Loads: Concentrated (or) Point load, Uniformly Distributed load (UDL), Types of Supports: Simple support, Roller support, Hinged support, Fixed support, Types of Reactions: Vertical reaction, Horizontal reaction, Moment | | |
| | 11/12/2022 | Types of loads and beams: Types of Loads: Concentrated (or) Point load, Uniformly Distributed load (UDL), Types of Supports: Simple support, Roller support, Hinged support, Fixed support, Types of Reactions: Vertical reaction, Horizontal reaction, Moment | | |

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| 3RD | 11/14/2022 | Calculation of support reactions using equations | | |
| | 11/15/2022 | Calculation of support reactions using equations | | |
| | 11/16/2022 | Shear force and bending moment in beams: Shear Force and Bending Moment: Signs | | |
| | 11/17/2022 | S.F and B.M of general cases of determinate beams with concentrated loads and udl only, S.F and B.M diagrams for Cantilevers | | |
| | 11/18/2022 | S.F and B.M of general cases of determinate beams with concentrated loads and udl only, S.F and B.M diagrams for Cantilevers | | |
| 4TH | 11/19/2022 | S.F and B.M diagrams for Cantilevers | | |
| | 11/21/2022 | S.F and B.M diagrams for Cantilevers | | |
| | 11/22/2022 | Simply supported beams and Over hanging beams, Position of maximum BM, Point of contra | | |
| | 11/23/2022 | Simply supported beams and Over hanging beams, Position of maximum BM, Point of contra | | |
| | 11/24/2022 | Simply supported beams and Over hanging beams, Position of maximum BM, Point of contra | | |
| | 11/25/2022 | Slope and Deflection Introduction: Shape and nature of elastic curve (deflection curve); Relationship between slope, deflection and curvature (No derivation) | | |
| 5TH | 11/26/2022 | Relationship between slope, deflection and curvature (No derivation) | | |
| | 11/28/2022 | Importance of slope and deflection. | | |
| | 11/29/2022 | Slope and deflection of cantilever and simply supported beams under concentrated and | | |
| 1ST | 11/30/2022 | Slope and deflection of cantilever and simply supported beams under concentrated and | | |
| | 12/1/2022 | Slope and deflection of cantilever and simply supported beams under concentrated and uniformly distributed load (by Double Integration | | |
| | 12/2/2022 | Slope and deflection of cantilever and simply supported beams under concentrated and uniformly distributed load (by Double Integration method, Macaulay's method). | | |
| 2ND | 12/3/2022 | Slope and deflection of cantilever and simply supported beams under concentrated and uniformly distributed load (by Double Integration | | |
| | 12/5/2022 | Slope and deflection of cantilever and simply supported beams under concentrated and uniformly distributed load (by Double Integration | | |
| | 12/6/2022 | Indeterminate Beams : Indeterminacy in beams, Principle of consistent deformation/compatibility | | |
| | 12/7/2022 | Indeterminate Beams : Indeterminacy in beams, Principle of consistent deformation/compatibility | | |
| | 12/8/2022 | Analysis of propped cantilever, fixed and two span continuous beams by principle of | | |
| | 12/9/2022 | Analysis of propped cantilever, fixed and two span continuous beams by principle of | | |
| | 12/10/2022 | Analysis of propped cantilever, fixed and two span continuous beams by principle of | | |

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| 3RD | 12/12/2022 | SF and BM diagrams (point load and udl covering full span) | | |
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| | 12/15/2022 | SF and BM diagrams (point load and udl covering full span) | | |
| | 12/16/2022 | <u>Trusses</u> - Introduction: Types of trusses | | |
| | 12/17/2022 | statically determinate and indeterminate trusses, types of indeterminate, stable and unstable | | |
| | 4TH | 12/19/2022 | statically determinate and indeterminate trusses, types of indeterminate, stable and unstable | |
| 12/20/2022 | | advantages of trusses. | | |
| 12/21/2022 | | Analysis of trusses: Analytical method (Method of joints, method of Section) | | |
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| 12/23/2022 | | Analysis of trusses: Analytical method (Method of joints, method of Section) | | |
| 12/24/2022 | | Analysis of trusses: Analytical method (Method of joints, method of Section) | | |
| 1ST | | 12/26/2022 | Analysis of trusses: Analytical method (Method of joints, method of Section) | |
| | 12/27/2022 | Analysis of trusses: Analytical method (Method of joints, method of Section) | | |
| | 12/28/2022 | REVISION | | |
| | 12/29/2022 | REVISION | | |
| | 12/30/2022 | REVISION | | |
| | 12/31/2022 | REVISION | | |

H.O.D
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Fingh

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