|  |  |  |
| --- | --- | --- |
| LESSON PLAN OF 4TH SEMESTER(2016-19) CIVIL ENGINEERING | | |
| Discipline :-CIVIL | Semester:-4TH | Name of the Teaching Faculty |
| Subject:-  ANALYSIS OF STRUCTURE. | No of Days/per Week Class Allotted :-05 | Semester From:- 02ND JAN,2019 To:- 15th APRIL, 2019  No of Weeks:- 14 |
| Week | Class Day | Theory/ Practical Topics |
| 1st | 1st | 1.0TRUSSES AND FRAMES  Introduction –Types of trusses and frames |
| 2nd | 1.0Introduction  –statically determinate and indeterminate trusses and frames |
| 3rd | degree of indeterminacy, concept of stable and unstable structure, import, important uses of trusses and frames |
| 4th | Analysis of trusses: a) Analytical method ( Method of joints, method of Section) |
| 2nd | 1st | Graphical Method (Space Diagram, load diagram, Bow’s notation) |
| 2nd | Graphical Method (Vector Diagram, Polar diagram, Funicular Polygon, Maxwel’s Diagram) |
| 3rd | 2.0SLOPE AND DEFLECTION  Introduction: Shape and nature of elastic curve |
| 4th | Relationship between slope |
| 3rd | 1st | Slope deflection and curvature |
| 2nd | Importance of slope and deflection |
| 3rd | deflection of cantilever |
| 4th | simply supported beams under concentrated and uniformly distributed load (by Double Integration method, Macaulay’s method). |
| 4th | 1st | Slope and deflection of propped cantilever from principle of superposition. |
| 2nd | Moment Area Method – Derivation of moment area theorems for slope and deflection |
| 3rd | Determination of slope and deflection for following cases |
| 4th | Cantilever beam subjected to point load and uniformly distributed loads |
| 5th | 1st | Simple supported beam subjected to point load |
| 2nd | uniformly distributed loads |
| 3rd | 3.0Fixed Beam  Introduction |
|  | 4th | Advantages of fixed beam |
| 6th | 1st | Analysis of Fixed Beam |
| 2nd | Determination Fixed End Moments |
| 3rd | Bending Moment |
| 4th | Shear Force |
| 7th | 1st | diagram under point load |
| 2nd | uniformly distributed load |
| 3rd | Numerical Problems |
| 4th | 4.0CONTINUOUS BEAMS  Introduction |
| 8th | 1st | THEOREM OF THREE MOMENTS METHOD |
| 2nd | Analysis of continuous beam |
| 3rd | (without sinking of support) by application of Three Moment Equation for simply supported ends |
| 4th | fixed end and overhangs under action of point load |
| 9th | 1st | u.d.l. Bending Moment |
| 2nd | Shear Force diagram for the above cases. |
| 3rd | diagram |
| 4th | 5.0MOMENT DISTRIBUTION METHOD FOR INDETERMINATE STRUCTURES  Introduction |
| 10th | 1st | Sign convention |
| 2nd | carry over factor |
| 3rd | stiffness factor |
| 4th | distribution factors |
| 11th | 1st | its application for the analysis of various types of continuous beams with simply supported ends |
| 2nd | fixed ends and overhang |
| 3rd | symmetrical portal frame |
| 4th | without sway |
| 12th | 1st | Bending Moment |
| 2nd | Shear Force diagram for the above cases. |
| 3rd | |  |  | | --- | --- | | 6.0COLUMNS AND STRUTS  Columns and Struts |  | |
| 4th | Definition |
| 13th | 1st | Short and Long columns, End conditions |
| 2nd | Equivalent length / Effective length ,Slenderness ratio – Axially loaded short column |
| 3rd | Axially loaded long column – Euler’s theory of long columns |
| 4th | Derivation of expression for Critical load of  Columns with hinged ends |
| 14th | 1st | Expressions for other standard cases of end conditions (separate derivations not required) Numerical Problems |
| 2nd | 7.0ARCHES:  Types of arches ,practical applications |
| 3rd | Analysis of symmetrical three hinged parabolic arch subjected to point load |
| 4th | u.d.l. Bending Moment and Shear Force diagram for the above cases |