

LESSON PLAN OF 4th SEMESTER CIVIL ENGINEERING

Discipline: CIVIL	Semester: -4	Name of the Teaching Faculty: - Mrs. Rajashree Nayak
Subject: - Theory of Structures	No of Days/per Week Class Allotted: - 03	Semester From: <u>-22/12/2025</u> To: <u>-18.04.2026</u> No of Weeks: -15 Course Code: CEPC 204
Week	Class Day	Theory Topics
1 st	1 st	Direct and Bending Stresses in vertical members Introduction to axial and eccentric loads, nature of stresses, Maximum and minimum stresses, resultant stresses and distribution diagram.
	2 nd	Eccentricity about one principal axis only.
	3 rd	Numerical Solutions
2 nd	1 st	Condition for no tension or zero stress at extreme fibre, Limit of eccentricity, core of section for rectangular and circular cross sections, Middle third rule.
	2 nd	Chimneys of circular cross section subjected to wind pressure, Maximum and minimum stresses, resultant stresses and distribution diagram at base.
	3 rd	Numerical Solutions.
3 rd	1 st	Analysis of dams subjected to horizontal water pressure, conditions of stability, Maximum and minimum stresses. resultant stresses and distribution diagram at base.
	2 nd	Numerical Solutions.
	3 rd	Slope and Deflection Concept of slope and deflection, stiffness of beams, Relation among bending moment, slope, deflection and radius of curvature.
4 th	1 st	Double integration method to find slope and deflection of cantilever beams subjected to concentrated load and uniformly distributed load on entire span.
	2 nd	Double integration method to find slope and deflection of Simply Supported Beams subjected to concentrated load and uniformly distributed load on entire span.
	3 rd	Macaulay's method for slope and deflection, application to cantilever beam subjected to concentrated and uniformly distributed load on entire span.
5 th	1 st	Macaulay's method for slope and deflection, application to simply supported beam subjected to concentrated and uniformly distributed load on entire span.
	2 nd	Numerical Solutions.
	3 rd	Numerical Solutions
6 th	1 st	Numerical Solutions
	2 nd	Determinate and Indeterminate structures (Fixed and Continuous Beam) Concept of Determinate and Indeterminate structures, Definitions with examples.
	3 rd	Find the static determinacy of beam, pin jointed and rigid jointed frames.
7 th	1 st	Find the static determinacy of beam, pin jointed and rigid jointed frames.
	2 nd	Concept of fixity, effect of fixity, advantages and disadvantages of fixed beam over simply supported beam.
	3 rd	Principle of superposition, Fixed end moments from first principle for beam subjected to point load, UDL over entire span.

R. Nayak
22/12/2025

8 th	1 st	Application of standard formulae in finding end moments, end reactions and drawing S.F. and B.M. diagrams for a fixed beam.
	2 nd	Definition, effect of continuity, nature of moments induced due to continuity, concept of deflected shape, practical examples.
	3 rd	Clapeyron's theorem of three moments, application of Clapeyron's theorem maximum up to three spans and two unknown support moment only, Support at same level spans having same and uniform moment of inertia subjected to concentrated loads.
9 th	1 st	Application of Clapeyron's theorem maximum up to three spans and two unknown support moment only, Support at same level spans having same and uniform moment of inertia subjected to UDL.
	2 nd	Concept of influence line diagram (ILD) for different beams.
	3 rd	Moment distribution method Introduction to moment distribution method, sign convention, Carry over factor, stiffness factor, distribution factor.
10 th	1 st	Application of moment distribution method to various types of continuous beams subjected to concentrated loads and uniformly distributed load over entire span having same moment of inertia, supports at same level, up to three spans and two unknown support moments only.
	2 nd	Application of moment distribution method to various types of continuous beams subjected to concentrated loads and uniformly distributed load over entire span having different moment of inertia, supports at same level, up to three spans and two unknown support moments only.
	3 rd	Numerical Solutions.
11 th	1 st	Numerical Solutions
	2 nd	Numerical Solutions
	3 rd	Introduction to portal frames, Symmetrical and unsymmetrical portal frames with the concept of Bays and stories.
12 th	1 st	Numerical Solutions.
	2 nd	Numerical Solutions
	3 rd	Numerical Solutions
13 th	1 st	Simple trusses Types of trusses (Simple, Fink, compound fink, French truss, pratt truss, Howe truss, North light truss, King post and Queen post truss)
	2 nd	Calculate support reactions for trusses subjected to point loads at joints
	3 rd	Calculate forces in members of truss using Method of joints.
14 th	1 st	Numerical Solutions.
	2 nd	Numerical Solutions
	3 rd	Numerical Solutions
15 th	1 st	Calculate forces in members of truss using Method of sections.
	2 nd	Numerical Solutions.
	3 rd	Numerical Solutions
16 th	1 st	DOUBT CLEARING CLASS AND REVISION & PREVIOUS FIVE YEARS QUESTION ANSWER DISCUSSION
	2 nd	
	3 rd	

R. Nayak
22/12/2025