

GOPAL KRISHNA COLLEGE OF ENGINEERING & TECHNOLOGY

GOURAHARI VIHAR, PO: RANIPUT, JEYPORE – 764 005

LESSON PLAN

Name of the Subject: Advanced Structural Analysis

Name of the Faculty: Ambika Nahak

Semester: 5th Semester

Semester From: July to December

Branch: Civil Engineering

No. of Weeks: 15 Weeks

Week	Class Day	Theory/ Practical Topics
1 st	1 st	MODULE 1- INTRODUCTION Introduction to Force and Displacement methods of structural analysis
	2 nd	Problem Practice
	3 rd	Analysis of continuous beam and plane frame by slope deflection method
2 nd	1 st	Problem Practice
	2 nd	Moment distribution method
	3 rd	Problem Practice
3 rd	1 st	Kani's method.
	2 nd	Problem Practice
	3 rd	MODULE 2-Two hinged arches.
4 th	1 st	Problem Practice
	2 nd	Analysis of suspension cable with two hinged stiffening girders
	3 rd	Influence lines for indeterminate beams
5 th	1 st	Problem Practice
	2 nd	Influence lines for two hinged arches and stiffening girders
	3 rd	Analysis of fixed arches.
6 th	1 st	Problem Practice
	2 nd	Module-III: Plastic Analysis Introduction
	3 rd	Plastic modulus, shear factor, plastic moment of resistance, load factor
7 th	1 st	Problem Practice
	2 nd	Equilibrium/static method
	3 rd	Problem Practice
8 th	1 st	kinematic/mechanism method
	2 nd	Problem Practice
	3 rd	Simple cases of beams and frames (continuous beam and simple rectangular portals)
9 th	1 st	Problem Practice
	2 nd	Application of upper and lower bound theorems
	3 rd	Problem Practice
10 th	1 st	Determining the collapse load using both theorems and the concept of mechanisms

	2 nd	Problem Practice
	3 rd	Module-IV: Matrix method of analysis - Development of Stiffness and Flexibility matrices for bars
11 th	1 st	Problem Practice
	2 nd	Development of Stiffness and Flexibility matrices for trusses, plane frames
	3 rd	Problem Practice
12 th	1 st	Problem Practice
	2 nd	Use of flexibility and stiffness method for analysis of trusses and Beams
	3 rd	Problem Practice
13 th	1 st	Use of flexibility and stiffness method for analysis for beams and plane frames
	2 nd	Problem Practice
	3 rd	Problem Practice
14 th	1 st	Problem Practice
	2 nd	Problem Practice
	3 rd	PREVIOUS YEAR QUESTION DISCUSSION
15 th	1 st	PREVIOUS YEAR QUESTION DISCUSSION
	2 nd	PREVIOUS YEAR QUESTION DISCUSSION
	3 rd	REVISION