PARALA MAHARAJA ENGINEERING COLLEGE, BERHAMPUR

LESSON PLAN

Semester: 4th **Session: Even**
Subject: (PCI4I001)- Structural Analysis-I (3-0-0)
Branch/Course- Civil Engineering/ B.Tech
Name of Faculty:

Lecture No.	Module	Topic name to be covered	Remarks/ Sign of Faculty Member
1	I	Introduction to statically indeterminate structures with reference to two dimensional structures. Determination of static and kinematic indeterminacy in beams and frames	
2	I	Analysis of continuous beam using three moment theorem	
3	I	Analysis of continuous beam using three moment theorem	
4	I	Analysis of continuous beam using three moment theorem	
5	I	Analysis of continuous beam using three moment theorem	
6	I	Introduction to force method, Consistent deformation method for propped cantilevers	
7	I	Consistent deformation method for Fixed beams	
8	I	Consistent deformation method for Continuous beams	
9	I	Introduction to displacement method, Difference between force and displacement method, Moment area method	
10	I	Deflection of statically determinate beams: Moment area method	
11	I	Deflection of statically determinate beams: Moment area method	
12	I	Deflection of statically determinate beams: Conjugate beam method	
13	I	Deflection of statically determinate beams: Conjugate beam method	
14	II	Deflection of statically determinate beams:Strain energy method, Virtual work method	
15	II	Deflection of statically determinate beams:Unit load method	
16	II	Betti's and Maxwell's laws, Castigliano's theorem, concept of minimum potential energy	
17	II	Deflection of statically determinate pin jointed plane trusses	

18	II	Analytical method and Williot-Mohr Diagram	
19	III	Analysis of redundant plane trusses and Introduction to space truss	
20	III	ILD for determinate beams for reaction, shear force and bending moment at a section	
21	III	Rolling loads and influence lines for simply supported beams	
22	III	Rolling loads and influence lines for simply supported beams	
23	III	ILD for point loads, wheel loads	
24	III	ILD for udl longer than span	
25	III	ILD for udl shorter than span	
26	III	ILD for udl shorter than span, and maximum bending moment envelope	
27	IV	Analysis of three hinged arches	
28	IV	ILD for three hinged arches	
29	IV	Suspension cable with three hinged stiffening girders	
30	IV	Suspension cable with three hinged stiffening girders	

Signature of faculty member Counter Signature of HOD

Course Outcome	After completion of the course students will be able to
CO1	Find the difference between statically determinate and indeterminate basic structural systems such as trusses, beams, frames.
CO2	Make use of classical methods and force method to solve statically indeterminate structures.
CO3	Utilize different methods to find out the slope and deflection of beams and truss.
CO4	Apply the concept of ILD and moving loads on determinate structure.
CO5	Analyze the performance of structural systems such as three hinged arch and suspension cable under static loads and live loads.