GANAPATI INSTITUTE OF ENGINEERING AND TECHNOLOGY (POLY),JAGATPUR, CUTTACK LESSON PLAN OF 4TH SEMESTER (2025-2026)		
DISCIPLINE : CIVIL ENGG.	SEMESTER-4TH	NAME OF THE TEACHING FACULTY: PRIYABRATA TRIPATHY (LECTURER)
SUBJECT: THEORY OF STRUCTURE (Th.2)	NO. OF DAYS/WEEK CLASS ALLOTTED:3	SEMESTER FROM :22/12/2025 TO:18/04/2026 NO. OF WEEKS:17
WEEK	CLASS DAY	THEORY/PRACTICAL TOPICS
1st	1st	Direct and Bending Stresses in vertical members Introduction to axial and eccentric loads
	2nd	eccentricity about one principal axis only, nature of stresses
	3rd	Maximum and minimum stresses, resultant stresses
2nd	1st	distribution diagram.
	2nd	Condition for no tension or zero stress at extreme fiber
	3rd	Limit of eccentricity
3rd	1st	core of section for rectangular and circular cross sections
	2nd	Middle third rule.
	3rd	Chimneys of circular cross section subjected to windpressure
4th	1st	Maximum and minimum stresses
	2nd	resultant stresses and distribution diagram at base.
	3rd	Analysis of dams subjected to horizontal water pressure
5th	1st	conditions of stability, Maximum and minimum stresses,
	2nd	resultant stresses and distribution diagram at base.
	3rd	Slope and Deflection Concept of slope and deflection
6th	1st	stiffness of beams,
	2nd	Relation among bending moment, slope, deflection and radius of curvature, (no derivation).
	3rd	Double integration method to find slope and deflection of cantilever concentrated load and uniformly distributed load on entire span.
7th	1st	Double integration method to find slope and deflection of simply supported beams subjected to concentrated load and uniformly distributed load on entire span.
	2nd	Problem practice
	3rd	Problem practice
8th	1st	Macaulay's method for slope and deflection, application to cantilever
	2nd	simply supported beam subjected to concentrated and uniformly distributed load on entire span.
	3rd	Determinate and Indeterminate structures (Fixed and Continuous Beam)
9th	1st	Concept of Determinate and Indeterminate structures
	2nd	Concept of fixity, effect of fixity, advantages and disadvantages of fixed beam over simply supported beam.
	3rd	Principle of superposition
10th	1st	Fixed end moments from first principle for beam subjected topoint load, UDL over entire span
	2nd	Fixed end moments from firstprinciple for beam subjected to point load, UDL over entire span
	3rd	Problem practice
11th	1st	Problem practice

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	2nd	Definition, effect of continuity, nature of moments induced due to continuity
	3rd	concept of deflected shape, practical examples.
12th	1st	Clapeyron's theorem of three moment (no derivation), Application of Clapeyron's theorem maximum up tothree spans
	2nd	and two unknown support moment only,
	3rd	Support at same level spans having same and uniform moment of inertia subjected to concentrated loads
13th	1st	uniformly distributed loads over entire span.
	2nd	Concept of influence line diagram (ILD)
	3rd	Problem practice
14th	1st	Problem practice
	2nd	Moment distribution method Introduction to moment distribution method
	3rd	Signconvention, Carry over factor, stiffness factor, distributionfactor.
15th	1st	Application of moment distribution method to various types of continuous beams
	2nd	subjected to concentrated loads
	3rd	uniformly distributed load over entire span having same
16th	1st	different moment of inertia, supports at same level, up to three
	2nd	spans and two unknown support moments only
	3rd	Introduction to portal frames – Symmetrical and unsymmetrical portal frames with the concept of Bays and stories.
17th	1st	Simple trusses Types of trusses (Simple, Fink, compound fink, French truss, pratt truss, Howe truss, North light truss, King post and Queen post truss)
	2nd	Calculate support reactions for trusses subjected to point loads at joints
	3rd	Calculate forces in members of truss using Method of joints and Method of sections.

23/12/25
LECTURER

23.12.2025
SR.LECTURER

Sr. Lecturer
Civil Engg. Dept.
G.I.E.T(Poly),Jagatpur,Ctc

PRINCIPAL 23/12/25

Principal
GIET (Polytechnic)
Jagatpur, Cuttack