

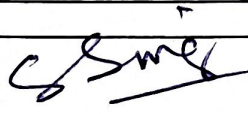
GOVT. POLYTECHNIC MAYURBHANJ LESSON PLAN- 2026-27 (WINTER)

Discipline : CIVIL ENGG.		Semester: 3rd		Name of the Teaching Faculty : Tapasi Behera	
Subject : MOM		No. of Days / per week class allotted : 03		Semester From date : 01.07.2026 To Date : 05.11.2026	
MONTH	Week	Day	Unit	Topics	
JULY	1st		UNIT-I	Centre of Gravity and Moment of Inertia	
		3rd			
		5th		Definition of centre of gravity -Centre of gravity of of Symmetrical shapes (solid / hollow square, rectangular, circular, I Sections)	
	2nd	2nd		Moment of inertia (M.I.): Definition, M.I. of plane lamina, Radius of gyration, section mod- ulus, Parallel and Perpendicular axes theorems (without derivations),	
		3rd		M.I. of rectangle, square, circle, semicircle, quarter circle and triangle section (without derivations).	
		5th		M.I. of symmetrical and unsymmetrical I-section, Channel section, T-section, Angle section, Hollow sections and built up sections about centroidal axes and any other referenceaxis.	
	3rd			Polar Moment of inertia of solid circular sections.	
		2nd	UNIT-II	Simple Stresses and Strains	
		3rd		Definition of rigid, elastic and plastic bodies, deformation of elastic body under various forces,	
		5th		Definition of stress, strain, elasticity, Hook's law, Elastic limit, Modulus of elasticity.	
	4th			Type of Stresses-Normal, Direct, Bending and Shear and nature of stresses i.e. Tensile and Compressive stresses.	
		2nd		Standard stress strain curve for tor steel bar under tension, Yield stress, Proof stress,	
		3rd		Ultimate stress, Strain at various critical points, Percentage elongation and Factor of safety.	
		5th			
	5th	2nd		Deformation of body due to axial force, forces applied at intermediate sections,	
		3rd		Maximum and minimum stress induced, Composite section under axial loading.	
		5th		Concept of temperature stresses and strain, Stress and strain developed due to temperature variation in homogeneous simple bar (no composite section)	
	2nd	2nd		Longitudinal and lateral strain, Modulus of Rigidity, Poisson's ratio, Biaxial and tri-axial stresses,	
		3rd		Volumetric strain, change in volume, Bulk modulus (Introduction only).	
		5th		Relation between modulus of elasticity, modulus of rigidity and bulk modulus (without derivation).	
AUGUST	3rd	2nd		COMPLEX STRESSES AND STRAINS Principal stresses and strains: Occurrence of normal and tangential stresses - Concept of Principal stress and Principal Planes	
		3rd		major and minor principal stresses and their orientations – stresses on a given plane	
		5TH		Shear and normal stress components on any inclined plane	
				Mohr's circle and its use in solving problems on complex stresses - Numerical problems	
	4th			Shear Force and Bending Moment	
		2nd		Types of supports, beams and loads.	
		3rd		Concept and definition of shear force and bending moment,	

	5th	5TH	UNIT-III	Relation between load, shear force and bending moment (without derivation).
		3rd		Birthday of Prophet Mohammad
		5TH		Uniformly distributed loads and couple (combination of any two types of loading), point of contra flexure.
SEPTEMBER	1st		UNIT-IV	Bending and Shear Stresses in beams
		2nd		Concept and theory of pure bending, assumptions, flexural equation (without derivation),
		3rd		Bending stresses and their nature, bending stress distribution diagram.
		5TH		JANMASTAMI
	2nd	2nd		1st Internal Assessment
		3rd		Concept of moment of resistance and simple numerical problems using flexural equation. Shear stress equation (without derivation)
		5TH		Concept of moment of resistance and simple numerical problems using flexural equation. Shear stress equation (without derivation)
	3rd	2nd		NUAKHAI
		3rd		Relation between maximum and average shear stress for rectangular and circular section, shear stress distribution diagram.
		5TH		Relation between maximum and average shear stress for rectangular and circular section, shear stress distribution diagram.
	4th	2nd		PROBLEMS
		3rd		Shear stress distribution for square, rectangular, circle, hollow, square, rectangular
		5th		Circular, angle sections, channel section, I-section, T section
	5th	2nd		PROBLEMS
		3rd		Shear stress distribution for square, rectangular, circle, hollow, square, rectangular, circular, angle sections, channel section, I-section, T section. Simple numerical problems based on shear equation.
OCTOBER	2nd	2nd	UNIT-V	PROBLEMS
		3rd		Columns Concept of compression member, short and long column, Effective length
		5th		Concept of compression member, short and long column, Effective length
	3rd	2nd		Radius of gyration, Slenderness ratio, Types of end condition for columns, Buckling of axially loaded columns.
		3rd		Radius of gyration, Slenderness ratio, Types of end condition for columns, Buckling of axially loaded columns.
		5TH		Euler's theory, assumptions made in Euler's theory and its limitations
	4th	3rd		Rankine's formula and its application to calculate crippling load.
		5th		2nd Internal Assessment
	5th	2nd		PROBLEMS
		3rd		Concept of working load/safe load, design load and factor of safety.
		5TH		Revision and Previous Year Question Discussion
NOVEMBER	1st	2nd		Revision and Previous Year Question Discussion
		3rd		Revision and Previous Year Question Discussion


Subject Expert
(Civil Engg.)


HOD, Civil Engg.


Academic Co-ordinator