Government Polytechnic Asthawan, Nalanda

LECTURE PLAN

DIPLOMA COURSE SEMESTER 3rd

Subject Code: 1625303					
Subject: Mechanics of Solids					
Name: Sanjeev Kumar (Lecturer/Mechanical Engg.)					
Department of Mechanical Engineering					
Units	Topics Covered	Lectures No.	Weeks	Lecture Modes	Remarks
Unit1.Mechanical Properties Of Materials,Simple Stresses and Strains	Introduction to MOS,Types of loads	1	1	Video/Pdf/PPT	
	Classification of strresses and Strains,Hooks Law,Stress- Strain Curves	2		Video/Pdf/PPT	
		3	2	Video/Pdf/PPT	
		4		Video/Pdf/PPT	
	Derivation of stress and strain in thincylindrical and spherical shells	5	3	Video/Pdf/PPT	
	Concepts of buckling and Equivalent Length	6		Video/Pdf/PPT	
		7	4	Video/Pdf/PPT	
	Concept of Deflection and slope,Relationship between deflection and slope,Numericals	8		Video/Pdf/PPT	
		9	5	Video/Pdf/PPT	
		10		Video/Pdf/PPT	
Unit2.Strain Energy	concept,derivation&use for gradual,sudden and impact load, strain energy due to self weigth	11	6	Video/Pdf/PPT	
		12		Video/Pdf/PPT	
		13	7	Video/Pdf/PPT	
Unit3. Bending Moment & Shear Force	shear force and bending moment ,Relation between them	14		Video/Pdf/PPT	
	SFD and BMD Diagram for subjected to different loading condition	15	8	Video/Pdf/PPT	
		16		Video/Pdf/PPT	
		17	9	Video/Pdf/PPT	
		18		Video/Pdf/PPT	
		19	10	Video/Pdf/PPT	
	Location of point of contraflexure,Problems	20		Video/Pdf/PPT	
		21	11	Video/Pdf/PPT	
Unit.4Moment of inertia	Definition ,MOI for Laminae, Radius of Gyration	22		Video/Pdf/PPT	
	el &perpendicular Axis theorem,mOI for different s	23	12	Video/Pdf/PPT	
	Polar MOI	24		Video/Pdf/PPT	
Unit5. Bending and Shear Stresses	Concept and equation of bending	25	13	Video/Pdf/PPT	
	Assumptions, MOR,Section Modulus	26		Video/Pdf/PPT	
		27	14	Video/Pdf/PPT	
	Direct and Transverse Shear Stress concept	28		Video/Pdf/PPT	
		29	15	Video/Pdf/PPT	

		30		Video/Pdf/PPT	
Unit.6 Combination of Bending &Direct stresses	Axial & eccentric Load, Direct Stresses, max &min bending stresses	31	16	Video/Pdf/PPT	
	combined stresses use for C-clamp	32		Video/Pdf/PPT	
	Bench vice	33	17	Video/Pdf/PPT	
	Drilling machine	34		Video/Pdf/PPT	
	short column	35	18	Video/Pdf/PPT	
	condition for no tension	36		Video/Pdf/PPT	
	Total stress variations	37	19	Video/Pdf/PPT	
	Simple problems	38		Video/Pdf/PPT	
Unit7. Principle plane& stresses	Concept of pp&ps	39	20	Video/Pdf/PPT	
	xpressions for normal,tangential &max shear stres	40		Video/Pdf/PPT	
	Stresses on inclined planes	41	21	Video/Pdf/PPT	
	Position of pp &max shear plane	42		Video/Pdf/PPT	
	Mohrs circle	43	22	Video/Pdf/PPT	
	Mohrs circle	44		Video/Pdf/PPT	
Unit 8.Torsion	Concept of pure Torsion	45	23	Video/Pdf/PPT	
	Torsion eqn for solid shaft	46		Video/Pdf/PPT	
	Torsion eqn for Hollow shaft	47	24	Video/Pdf/PPT	
	Assumptions & comparison in Pure torsion	48		Video/Pdf/PPT	