



**GANDHI SCHOOL OF ENGINEERING
BHABANDHA, BERHAMPUR
SESSION PLAN
3RD SEMESTER, BRANCH-MECHANICAL(GROUP 1)
STRENGTH OF MATERIAL(TH-2)**

Name of the Faculty –ER. SANJAY KUMAR PANIGRAHY						
Topics to be taken				Actually taken		
SL NO & CHAPTER	No. of Periods assigned by SCTE & VT	Details of the topics	PLANNED DATE	Details of the topics	ACTUAL DATE	Remarks
1. Simple stress & strain	10	1.1 Types of load, stresses & strains,(Axial and tangential) Hookes law, Young’s modulus, bulk modulus, modulus of rigidity, Poisson’s ratio, derive the relation between three elastic constants, 1.2 Principle of super position, stresses in composite section 1.3 Temperature stress, determine the temperature stress in composite bar (single core) 1.4 Strain energy and resilience, Stress due to gradually applied, suddenly applied and impact load 1.5 Simple problems on above.	15/09/2022 TO 30/09/2022	1.1 Types of load, stresses & strains,(Axial and tangential) Hookes law, Young’s modulus, bulk modulus, modulus of rigidity, Poisson’s ratio, derive the relation between three elastic constants,	15/09/2022	
				1.2 Principle of super position, stresses in composite section	16/09/2022	
				1.3 Temperature stress, determine the temperature stress in composite bar (single core)	20/09/2022	
				1.4 Strain energy and resilience, Stress due to gradually applied, suddenly applied and impact load	21/09/2022	
				1.5 Simple problems on above.	22/09/2022	
				23/09/2022		
				27/09/2022		
				28/09/2022		
				29/09/2022		
				30/09/2022		

<p>2. Thin cylinder and spherical shell under internal pressure</p>	<p>8</p>	<p>2.1 Definition of hoop and longitudinal stress, strain 2.2 Derivation of hoop stress, longitudinal stress, hoop strain, longitudinal strain and volumetric strain 2.3 Computation of the change in length, diameter and volume 2.4 Simple problems on above</p>	<p>11/10/2022 TO 21/10/2022</p>	<p>2.1 Definition of hoop and longitudinal stress, strain 2.2 Derivation of hoop stress, longitudinal stress, hoop strain, longitudinal strain and volumetric strain 2.3 Computation of the change in length, diameter and volume 2.4 Simple problems on above</p>	<p>11/10/2022 12/10/2022 13/10/2022 14/10/2022 18/10/2022 19/10/2022 20/10/2022 21/10/2022</p>	
<p>3. Two dimensional stress systems</p>	<p>10</p>	<p>3.1 Determination of normal stress, shear stress and resultant stress on oblique plane 3.2 Location of principal plane and computation of principal stress 3.3 Location of principal plane and computation of principal stress and maximum shear stress using Mohr's circle</p>	<p>26/10/2022 TO 11/11/2022</p>	<p>3.1 Determination of normal stress, shear stress and resultant stress on oblique plane 3.2 Location of principal plane and computation of principal stress 3.3 Location of principal plane and computation of principal stress and maximum shear stress using Mohr's circle</p>	<p>26/10/2022 27/10/2022 28/10/2022 1/11/2022 2/11/2022 3/11/2022 4/11/2022 9/11/2022 10/11/2022 11/11/2022</p>	

<p>4. Bending moment & shear force</p>	<p>10</p>	<p>4.1 Types of beam and load 4.2 Concepts of Shear force and bending moment 4.3 Shear Force and Bending moment diagram and its salient features illustration in cantilever beam, simply supported beam and over hanging beam under point load and uniformly distributed load</p>	<p>15/11/2022 TO 2/12/2022</p>	<p>4.1 Types of beam and load 4.2 Concepts of Shear force and bending moment 4.3 Shear Force and Bending moment diagram and its salient features illustration in cantilever beam, simply supported beam and over hanging beam under point load and uniformly distributed load</p>	<p>15/11/2022 17/11/2022 18/11/2022 22/11/2022 23/11/2022 24/11/2022 25/11/2022 29/11/2022 30/11/2022 2/12/2022</p>	
<p>5. Theory of simple bending</p>	<p>10</p>	<p>5.1 Assumptions in the theory of bending, 5.2 Bending equation, Moment of resistance, Section modulus & neutral axis. 5.3 solve simple problems</p>	<p>6/12/2022 TO 21/12/2022</p>	<p>5.1 Assumptions in the theory of bending, 5.2 Bending equation, Moment of resistance, Section modulus & neutral axis. 5.3 solve simple problems</p>	<p>6/12/2022 7/12/2022 8/12/2022 9/12/2022 13/12/2022 14/12/2022 15/12/2022 16/12/2022 20/12/2022 21/12/2022</p>	

6. Combined direct & Bending stresses	6	6.1 Define column 6.2 Axial load, Eccentric load on column, 6.3 Direct stresses, Bending stresses, Maximum & Minimum stresses. Numerical problems on above. 6.4 Buckling load computation using Euler's formula (no derivation) in columns with various end conditions	22/12/2022 TO 30/12/2022	6.1 Define column 6.2 Axial load, Eccentric load on column, 6.3 Direct stresses, Bending stresses, Maximum & Minimum stresses. Numerical problems on above. 6.4 Buckling load computation using Euler's formula (no derivation) in columns with various end conditions	22/12/2022 23/12/2022 27/12/2022 28/12/2022 29/12/2022 30/12/2022	
7. Torsion	6	7.1 Assumption of pure torsion 7.2 The torsion equation for solid and hollow circular shaft 7.3 Comparison between solid and hollow shaft subjected to pure torsion	3/01/2023 TO 20/01/2023	7.1 Assumption of pure torsion 7.2 The torsion equation for solid and hollow circular shaft 7.3 Comparison between solid and hollow shaft subjected to pure torsion REVISION-	3/01/2023 4/01/2023 5/01/2023 6/01/2023 10/01/2023 11/01/2023 12/01/2023 13/01/2023 19/01/2023 20/01/2023	

S.K. Panigrahy

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 H.O.D
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Name of the Faculty –ER. S PRASAD RAO DORA						
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<p>2. Thin cylinder and spherical shell under internal pressure</p>	<p>8</p>	<p>2.1 Definition of hoop and longitudinal stress, strain 2.2 Derivation of hoop stress, longitudinal stress, hoop strain, longitudinal strain and volumetric strain 2.3 Computation of the change in length, diameter and volume 2.4 Simple problems on above</p>	<p>11/10/2022 TO 27/10/2022</p>	<p>2.1 Definition of hoop and longitudinal stress, strain 2.2 Derivation of hoop stress, longitudinal stress, hoop strain, longitudinal strain and volumetric strain 2.3 Computation of the change in length, diameter and volume 2.4 Simple problems on above</p>	<p>11/10/2022 13/10/2022 14/10/2022 17/10/2022 18/10/2022 20/10/2022 21/10/2022 27/10/2022</p>	
<p>3. Two dimensional stress systems</p>	<p>10</p>	<p>3.1 Determination of normal stress, shear stress and resultant stress on oblique plane 3.2 Location of principal plane and computation of principal stress 3.3 Location of principal plane and computation of principal stress and maximum shear stress using Mohr's circle</p>	<p>28/10/2022 TO 18/11/2022</p>	<p>3.1 Determination of normal stress, shear stress and resultant stress on oblique plane 3.2 Location of principal plane and computation of principal stress 3.3 Location of principal plane and computation of principal stress and maximum shear stress using Mohr's circle</p>	<p>28/10/2022 1/11/2022 3/11/2022 4/11/2022 10/11/2022 11/11/2022 14/11/2022 15/11/2022 17/11/2022 18/11/2022</p>	

<p>4. Bending moment & shear force</p>	<p>10</p>	<p>4.1 Types of beam and load 4.2 Concepts of Shear force and bending moment 4.3 Shear Force and Bending moment diagram and its salient features illustration in cantilever beam, simply supported beam and over hanging beam under point load and uniformly distributed load</p>	<p>21/11/2022 TO 8/12/2022</p>	<p>4.1 Types of beam and load 4.2 Concepts of Shear force and bending moment 4.3 Shear Force and Bending moment diagram and its salient features illustration in cantilever beam, simply supported beam and over hanging beam under point load and uniformly distributed load</p>	<p>21/11/2022 22/11/2022 24/11/2022 25/11/2022 28/11/2022 29/11/2022 2/12/2022 5/12/2022 6/12/2022 8/12/2022</p>	
<p>5. Theory of simple bending</p>	<p>10</p>	<p>5.1 Assumptions in the theory of bending, 5.2 Bending equation, Moment of resistance, Section modulus & neutral axis. 5.3 solve simple problems</p>	<p>9/12/2022 TO 26/12/2022</p>	<p>5.1 Assumptions in the theory of bending, 5.2 Bending equation, Moment of resistance, Section modulus & neutral axis. 5.3 solve simple problems</p>	<p>9/12/2022 12/12/2022 13/12/2022 15/12/2022 16/12/2022 19/12/2022 20/12/2022 22/12/2022 23/12/2022 26/12/2022</p>	

6. Combined direct & Bending stresses	6	6.1 Define column 6.2 Axial load, Eccentric load on column, 6.3 Direct stresses, Bending stresses, Maximum & Minimum stresses. Numerical problems on above. 6.4 Buckling load computation using Euler's formula (no derivation) in columns with various end conditions	27/12/2022 TO 5/01/2023	6.1 Define column 6.2 Axial load, Eccentric load on column, 6.3 Direct stresses, Bending stresses, Maximum & Minimum stresses. Numerical problems on above. 6.4 Buckling load computation using Euler's formula (no derivation) in columns with various end conditions	27/12/2022 29/12/2022 30/12/2022 2/1/2023 3/1/2023 5/1/2023	
7. Torsion	6	7.1 Assumption of pure torsion 7.2 The torsion equation for solid and hollow circular shaft 7.3 Comparison between solid and hollow shaft subjected to pure torsion	6/01/2023 TO 20/01/2023	7.1 Assumption of pure torsion 7.2 The torsion equation for solid and hollow circular shaft 7.3 Comparison between solid and hollow shaft subjected to pure torsion REVISION-	6/01/2023 9/01/2023 10/01/2023 12/01/2023 13/01/2023 16/01/2023 19/01/2023 20/01/2023	

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