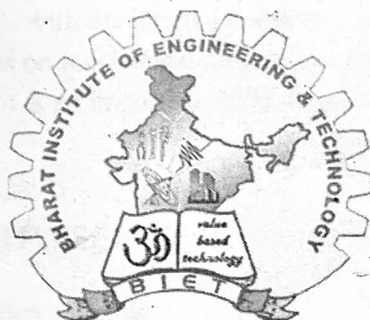


# BHARAT INSTITUTE OF ENGINEERING & TECHNOLOGY

**SIVARAM VIHAR, GHATAKESWAR HILLS  
MOHADA, BERHAMPUR (GM.)**



## STUDENT'S ATTENDANCE REGISTER

Time	9.55	10.45	2.45		
Day	10.45	11.35	-3.35		
Mon		✓			
Tue			✓		
Wed	✓				
Thu					
Fri	✓				
Sat					

Year/ Session : 2023 (winter)

Semester from Date: 01/08/2023 To Date : 30/11/2023

Semester & Branch

3rd sem, Mechanical Engineering

Subject with Code

STRENGTH OF MATERIAL

Name of the Faculty Member

PRADYUMNA MAHARANA

No of Weeks: 23

No of Days per Week Class Allotted : 4 days/week

# B.I.E.T., COURSE PLAN

Month	Week	Class Day	Theory/Practical Topic
AUG	1 <sup>st</sup> week	1.8.23	Define strength of material. <sup>CH-1</sup>
		2.8.23	Types of load.
		4.8.23	stresses and strains (axial and Tangential). Hooke's law, young's modulus; bulk modulus.
	2 <sup>nd</sup> week	7.8.23	modulus of rigidity, Poisson's ratio.
		8.8.23	derive the relation between three elastic constants.
		9.8.23	principle of superposition, stresses in composite section.
		11.8.23	Temperature stress, determine the temperature stresses in Composite bar. (Single Core).
	3 <sup>rd</sup> week	14.8.23	Strain energy and resilience, stresses due to gradually applied, suddenly applied & impact load.
		16.8.23	Simple problems on above.
		18.8.23	Assignment practice and previous year questions discussion.

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# B.I.E.T., COURSE PLAN

Month	Week	Class Day	Theory/Practical Topic		
AUG		29.8.23	<u>CH-2 - Thin Cylinder and Spherical shell Under Internal Pressure.</u>		
			Definition of hoop and longitudinal stress, strain.		
		4th week	22.8.23	Derivation of hoop stress	
			23.8.23	Derivation of longitudinal stress.	
			25.8.23	hoop strain Derivation.	
		5th week	28.8.23	Derivation of longitudinal strain.	
			29.8.23	Derivation of volumetric strain.	
		SEPT.	1st week	1.9.23	Simple numerical problems
				4.9.23	Computation of the change in length, diameter and volume.
				5.9.23	Simple problems on above
8.9.23	Assignment practice.				

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# B.I.E.T., COURSE PLAN

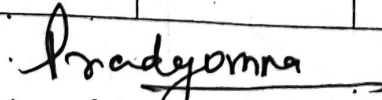
Month	Week	Class Day	Theory/Practical Topic	
SEPT	3 <sup>rd</sup> week	11.9.23	<u>CH-3 Two dimensional stress system.</u>	
		12.9.23	Determination of normal stress	
		13.9.23	Determination of shear stress.	
	4 <sup>th</sup> week	15.9.23	Determination of resultant stress on oblique plane.	
		16.9.23	Location of principal plane.	
		22.9.23	Computation of principal stress.	
		5 <sup>th</sup> week	25.9.23	Location of principal plane
			26.9.23	Computation of principal stress.
	OCT	1 <sup>st</sup> week	27.9.23	Maximum shear stress Using Mohr's Circle.
			3.10.23	solve Numericals on above.
1 <sup>st</sup> week		4.10.23	<u>CH-4 Bending moment and shear force.</u>	
		6.10.23	Types of beam and load.	

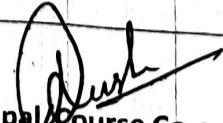
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# B.I.E.T., COURSE PLAN

Month	Week	Class Day	Theory/Practical Topic
OCT	1st week	9.10.23	Concepts of shear force and Bending moment.
		10.10.23	Shear force diagram
		11.10.23	Bending moment diagram.
		13.10.23	Shear force and Bending moment diagram of a Cantilever beam.
	2nd week	16.10.23	Shear force and Bending moment diagram of a simply supported beam.
		17.10.23	Shear force and Bending moment diagram of a Overhanging beam under point load.
		18.10.23	S.F and B.M. diagram of Uniformly distributed load.
4th week	30.10.23	Solved Numerical on above.	

  
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# B.I.E.T., COURSE PLAN

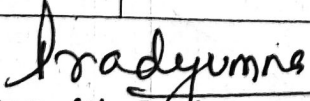
Month	Week	Class Day	Theory/Practical Topic
OCT	4th week	31.10.23	<u>CH-5</u> <u>Theory of simple bending</u>
NOV	1st week	1.11.23	A assumptions on the theory of bending.
		3.11.23	Bending equation.
	2nd week	6.11.23	Moment of resistance ;
		7.11.23	Section Modulus.
		8.11.23	Neutral axis.
	3rd week	10.11.23	solve problems on above.
		13.11.23	<u>CH-6</u> <u>Combined direct and Bending stress.</u>
		14.11.23	Define column.
		15.11.23	Axial load , Eccentric load Column.
		17.11.23	solved problems on above
4th week	20.11.23	Assignment practice.	

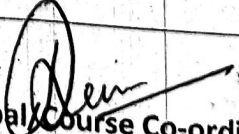
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Month	Week	Class Day	Theory/Practical Topic
NOV	4th week	21.11.23	Previous year Questions practice.
		22.11.23	Direct stresses
		24.11.23	Bending stresses.
		28.11.23	Maximum and Minimum stresses.
		29.11.23	Numerical problems on above.
DEC	1st week	1.12.23	Buckling load Computation Using Euler's formula in Columns with various end conditions.
<del>NOV</del>	2nd week	4.12.23	Assignment Questions practice.
		6.12.23	Solved Numerical problems on above.
		8.12.23	Previous year Questions practice.

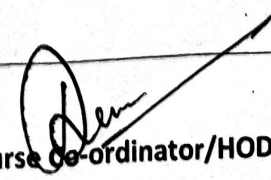
  
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# B.I.E.T., COURSE PLAN

Month	Week	Class Day	Theory/Practical Topic	
DEC	3rd week	11.12.23	<u>CH-7</u> <u>TORSION</u> .	
		12.12.23	Assumption of pure torsion.	
		13.12.23	The torsion equation for solid circular shaft.	
			15.12.23	The torsion equation for hollow circular shaft.
	4th week		18.12.23	Comparison between solid and hollow shaft subjected to pure torsion.
			19.12.23	Solved Numerical problems on above.
			20.12.23	Assignment Questions practice
			22.12.23	previous year Questions discussion.
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