

**Lesson Plan/ Course Break – up**

**PCC-CVE204-T- STRUCTURAL ANALYSIS-I**

**Name of the Faculty** : Mr. Manik Goyal  
**Discipline** : B.Tech in Civil Engineering  
**Semester** : IV (2nd Year)  
**Subject** : Structural Analysis-I  
**Lesson Plan Duration** : 15 Weeks  
**Work Load (Lecture / Practical) per week (in hrs.)** : Lectures – 03

Week	Theory	
	Lecture Day	Topic (Including assignment / Test)
1 <sup>st</sup>	1	<b>Analysis of stresses and strains:-</b>
	2	Analysis of simple states of stresses and strains
	3	Elastic constraints, bending stresses
2 <sup>nd</sup>	4	Theory of simple bending
	5	Flexure formula, combined stresses in beams,
	6	Shear stresses, Mohr's circle
3 <sup>rd</sup>	7	Principle stresses and strains
	8	Torsion in shafts and closed thin walled sections,
	9	Stresses and strains in cylindrical shells
4 <sup>th</sup>	10	Spheres under internal pressure
	11	<b>Theory of Columns:</b> Slenderness ratio
	12	End connections, short columns
5 <sup>th</sup>	13	Euler's critical buckling loads
	14	Eccentrically loaded short columns
	15	Cylinder columns subjected to axial and eccentric loading.
6 <sup>th</sup>	16	Cylinder columns subjected to axial and eccentric loading.
	17	<b>Bending moment and shear force in determinate beams and frames:</b>
	18	Definitions and sign conventions,
7 <sup>th</sup>	<b>1<sup>st</sup> Minor Test</b>	
8 <sup>th</sup>	19	Axial force, shear force and bending moment diagrams
	20	Axial force, shear force and bending moment diagrams
	21	<b>Three hinged arches:</b>
9 <sup>th</sup>	22	Horizontal thrust
	23	Shear force and bending moment diagrams.
	24	<b>Deflections in beams:</b> Introduction
10 <sup>th</sup>	25	Slope and deflections in beams by differential equations
	26	Moment area method and conjugate beam method
	27	Examples
11 <sup>th</sup>	28	Unit load method
	29	Principle of virtual work
	30	Maxwell's Law of Reciprocal Deflections.
	31	<b>Analysis of statically determinate trusses:</b> Introduction

12 <sup>th</sup>	32	Various types ,stability,	
	33	Analysis of plane trusses by method of joints and method of sections	
13 <sup>th</sup>	34	Analysis of plane trusses by method of joints and method of sections	
	35	Examples	
	36	Analysis of space trusses using tension coefficient method.	
<b>14<sup>th</sup></b>	<b>2<sup>nd</sup> Minor test</b>		
15 <sup>th</sup>	37	Analysis of space trusses using tension coefficient method.	
	38	Analysis of space trusses using tension coefficient method.	
	39	Examples	