DEPARTMENT OF CIVIL ENGINEERIG

TEACHING PLAN

Course Code	Course Title	Semester	Branches	Contact Periods /Week	Academic Year	Date of commencement of Semester
19CE5T01	STRUCTURAL ANALYSIS-II	V	CIVIL	5	2021-22	04-10-2021

COURSE OUTCOMES
Students are able to

1	Determine support reactions, normal thrust, radial shear for three hinged and two hinged arches. [K3]
2	Apply moment distribution method to continuous beams and portal frames. [K3]
3	Solve continuous beams and portal frames using Kani's method. [K3]
4	Use lateral load analysis to building frames [K3]
5	Analyze Cable Structures and Suspension Bridges: [K4]

UNIT	Out Comes / Bloom's Level	Topics No.	Topics/Activity	Text Book / Reference	Contact Hour	Delivery Method
			I. Three Hinged and Two Hinged Arches			
1	Determine support reactions, normal thrust, radial shear for three hinged and two hinged arches. [K3]	1.1	Three Hinged Arches Introduction	T1	01	Chalk & Board, PPT
		1.2	Elastic theory of arches	T1	01	
		1.3	Eddy's theorem	T1	01	
		1.4	Determination of horizontal thrust, Support Reactions, bending moment	T1	02	
		1.5	Normal thrust and radial shear	T1	02	
		1.6	Effect of temperature	T1	01	
		1.7	Two Hinged Arches Introduction	T1	01	
		1.8	Determination of horizontal thrust, bending moment	T1	02	
		1.9	Normal thrust and radial shear	T1	02	
		1.10	Rib shortening	T1	01	
		1.11	Temperature stresses	T1	01	
				Total	15	
			II. Moment Distribution Method			
2	Apply moment distribution	2.1	Stiffness and carry over factors	T1	01	Chalk & Board,
		2.2	Distribution factors	T1	01	
		2.3	Analysis of continuous beams with sinking of supports	T3	02	

1

method to continuous beams and portal frames. **[K3]**	2.4	Analysis of continuous beams without sinking of supports	T3	02	PPT, video
	2.5	Portal frames	R3	02	
	2.6	Including Sway	T3	02	
	2.7	Substitute frame analysis by two cycles.	T3	02	
			Total	12	

	III. Kani's Method				
3	Solve continuous beams and portal frames using Kani's method. **[K3]**	3.1 **Introduction**	T1	01	Chalk & Board, PPT, video
		3.2 Analysis of continuous beams	R2	02	
		3.3 Including settlement of supports	T1	02	
		3.4 single bay portal frames	T1	02	
		3.5 with side sway	T2	02	
		3.6 without side sway	T1	02	
			Total	11	

	IV. Lateral Load Analysis Using Approximate Methods				
4	Use lateral load analysis to building frames **[K3]**	4.1 **Introduction**	T1	01	Chalk & Board, PPT, video
		4.2 Application to building frames.	R1	01	
		4.3 Portal method	T3	02	
		4.4 Problems on portal method	T3	02	
		4.5 **Cantilever Method**	T1	02	
		4.6 Problems on cantilever method	R2	02	
			Total	10	

	V. Cable Structures and Suspension Bridges				
5	Analyze Cable Structures and Suspension Bridges. **[K4]**	5.1 Introduction	T2	01	Chalk & Board, PPT, video
		5.2 Characteristics of cable	T2	01	
		5.3 Analysis of cables subjected to concentrated and uniformly distributed loads	T2	02	
		5.4 Anchor cable, temperature stresses		01	
		5.5 Analysis of simple suspension bridge	T3	02	
		5.6 Three hinged stiffening girder suspension bridges.	T3	02	
		5.7 Two hinged stiffening girder suspension bridges.	T3	02	
	Content Beyond Syllabus	**Guide Pulley Problems**	T1	01	
			Total	12	
	CUMULATIVE PROPOSED PERIODS			60	

Text Books:

S.No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION
1	S Ramamrutham & R Narayan, Theory Of Structures, 9th Edition, Dhanpat Rai Publishing Company Private Limited, 2014.
2	S.S. Bhavikatti, Structural Analysis-II, 4th Edition, Vikas Publishing House, 2018.

2

SWARNANDHRA
COLLEGE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)
Accredited by National Board of Accreditation, AICTE, New Delhi, Accredited by
NAAC with "A" Grade – 3.32 CGPA, Recognized under 2(f) & 12(B) of UGC Act 1956,
Approved by AICTE, New Delhi, Permanent Affiliation to JNTUK, Kakinada
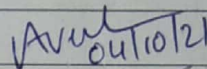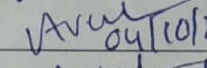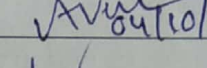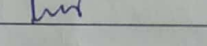Seetharampuram, W.G.DT., Narsapur-534280, (Andhra Pradesh)

3	Sp Gupta & Gs Pandit, Theory Of Structures Vol 1, 1st Edition, Tata Mcgraw Hill Publishing Co Ltd, 2016.

Reference Books:

S.No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION
1	V.D. Prasad, Structural Analysis, 3rd Edition, Galgotia publication, 2015.
2	R.S. Khurmi, Theory of Structures, 10th Edition, S. Chand Publishers, 2016.
3	R.C. Hibbeler, Structural analysis, 8th Edition, Pearson publishers, 2014.

Web Details

1	https://nptel.ac.in/courses/105105166/
2	https://nptel.ac.in/courses/105101085/

		Name	Signature with Date
i.	Faculty	A. Venkata Krishna	Avu 04/10/21
ii.	Course Coordinator	A. Venkata Krishna	Avu 04/10/21
iii.	Module Coordinator	A. Venkata Krishna	Avu 04/10/21
iv.	Programme Coordinator	G.V.L.N.Murthy	

Principal