

Jaipur Engineering College and Research Centre, Jaipur

Department of Civil Engineering

Lecture Plan						
Subject name: WIND AND SEISMIC ANALYSIS Subject Code: 6CE3-01 Year: 3rd Semester: 6th		POs PO1; PO2; PO3;PO4;PO6;PO7; PO12		COs CO 1:-This subject will provide the understanding of different types of structural systems, symmetry and asymmetry in buildings. CO 2:- To understand different type of loads considered and taken in to account when designing the building especially DL/LL/IL/EL CO 3:- To understand different types of construction for Earthquake Load and wind load and various provisions specified by Bureau of Indian standards. CO 4:- To understand the design criteria of the buildings/ Roof (general &special)/ building components and the modern techniques involved in construction.		
S. No.	Lecture No.	Topic to be discussed	COs	Objective of Unit	Outcome of Lecture and CO Students are able to:-	From page to
UNIT -1	1	Introduction of Wind and seismic analysis and course outcome	CO1	understanding of different types of structural systems, symmetry and asymmetry in buildings	Understand about Wind and seismic analysis	T1(1.2-1.5)
	2	Objective, scope of the course	CO1		Understand about Wind and seismic analysis	
	3	Different type of structures and load flow concept	CO1		Understand about Different type of structures	T1(1.7-1.14) T2(1.4-1.15)
	4	Types of structures and Structure's forms	CO1		Understand about load flow concept and structure forms	T1(1.5-1.17)
	5	Symmetry and Asymmetry in building forms,	CO1		About building forms symmetry and asymmetry and there	T1(1.16-1.18) T2(1.46-1.53)

					effects	
	6	Building height and plan ratio	CO1		The effects of building height and plan ratio	T2(1.14-1.17)
	7	Vertical and lateral load resting elements	CO1		Understanding of vertical and lateral load resting elements	T2(1.30-1.36)
UNI T-2	8	shear walls	CO2		Effects and requirements of shear wall	T2(1.37-1.40)
	9	framed tubes and various multistorey configurations	CO2		Configuration of multi-storey buildings	T2(1.41-1.44)
	10	Design Loads: various types of loads and relevant codes	CO2		Various design loads on building	IS 875, IS 1893
	11	Design loads for different types of buildings	CO2	understand different type of loads	Various design loads on building	IS 875 PART (1-5) AND IS 1893
	12	Introduction to (IS-875 part 1 & 2)	CO2	considered and taken in to account	Introduction to IS Code for lateral loads	IS 875
	13	Wind Loads Analysis: Wind loads & calculation of wind load on flat roof	CO3	when designing the building especially	Analysis of wind load and calculation of forces	T2(2.1-2.2) IS 875
	14	Calculation of Cpe, Cpi on mono slope roof	CO3	DL/LL/IL/EL	Analysis of wind load and calculation of forces	IS 875(13-38)
	15	Calculation of forces on walls	CO3		Analysis of wind load and calculation of forces	
UNI T-3	16	pitched roof and single sloped roof buildings (IS: 875-Part 3).	CO3	understand different types of construction for Earthquake Load and	Calculation of forces on pitched roofs	IS 875(13-38)
	17	Problems	CO3		Problems on lateral loads	REFER IS 875 AND T2(2.24-2.80)

	18	Earthquake Load Analysis: Earthquake loads	CO3	wind load and various provisions specified by Bureau of Indian standards	Earthquake load analysis	IS 1893
	19	Design of earthquake load on building	CO3		Earthquake loads on building calculations	IS 1893
	20	calculations of earthquake loads on framed structures. (IS: 1893 – Part 1).	CO3		Framed structures lateral load calculation	IS 1893(14-35) T2(3.25-3.6)
	UNI T-4	21	Earthquake Resistant Construction:		CO4	Construction of earthquake resistant structures
22		Typical seismic failure of RCC structures	CO4	Failure of rcc structure due to seismic load	IS4326(1-32)	
23		Typical seismic failure of masonry	CO4	Failure of rcc structure due to seismic load	IS4326(1-32)	
24		Design of masonry buiding and framed structures	CO4	Construction of masonry structure to resist seismic load	IS4326(1-32)	
UNI T-5	25	Design concept of masonry building	CO4	understand the design criteria of the buildings/ Roof (general &special)/ building components and the modern techniques involved in construction.	Construction of masonry structure to resist seismic load	IS13828(1-10)
	26	various provisionsof construction and ductile detailing as per different IS codes.	CO4		Ductile detailing of construction	IS13920(1-14)
	27	IS-4326,IS-13827	CO4		Provisions of various IS CODES	
	28	IS-13828, IS-13920,	CO4		Provisions of various IS CODES	
	29	IS-13935	CO4		Provisions of various IS CODES	
		Content beyond				

	30	Introduction to mass housing		Understanding of mass housing ,		Through PPTS and NPTEL video lectures
	31	Prefabricated Construction		prefabricated construction, grid and ribbed floors		
	32	Grid and ribbed floors				
Reference books:		T1 : Building Design Bharat Nagar & Harsh shimal T2: Building Design by R K Sipani & Sanjeev Sipani T3: IS 1893(Part 1) T4: IS 875 PART 3				