

Lesson Planning (Theory)

Branch : Civil Engineering

Semester : 5th

Subject : Earthquake Resistant Building Design Session : August-December 2026

Teacher: Er. Anuj Rana

Class Room : A-201

S.No.	No. of WEEKS	Chapter/ Unit Description	Detail of Contents	Reference Resources	Remarks
1	3 WEEKS	Unit I: Elements of Engineering Seismology	- General features of tectonic of seismic regions - Causes of earthquakes - Seismic waves - Earth quake size (magnitude and intensity) - Epicenter - Seismograph - Classification of earthquakes - Seismic zoning map of India	R1,R2	
2	3 WEEKS	Unit II: Seismic Behaviour of Traditionally-Built Construction s of India Unit III: Introduction to IS1893 (Part-I)-2016	- Earth quake effects - Traditionally built construction in India - Performance of building during earthquakes and Mode of failure (Out of plane failure, in plane failure, Diaphragm failure, Connection failure, Non-structural components failure) - Introduction - Assumptions - Design lateral forces and their calculation methods	R1,R2	
3	3 WEEKS	Unit IV: Ductile Detailing of Reinforced Concrete Buildings (IS 13920-2016) & IS 4326-2013) Unit V: Introduction to IS13828-1993 & IS13827-1993	- Common modes of failure in reinforced concrete buildings - General Principal for earthquake resistant buildings & Special construction features - Types of irregularities - Vertical irregularities - Plan irregularities - Ductile detailing as per code - Seismic strengthening arrangements - Horizontal reinforcement - Vertical reinforcement - Advantages and disadvantages of masonry construction - Behaviour of masonry construction during earthquakes - Earthquake resistance features for burnt clay brick in weak mortar	R1,R2	
4	3 WEEKS	Unit V: Introduction to IS13828-1993 & IS13827-1993	- Codal Provisions for earthquake resistant earthen construction - Seismic strengthening features of earthen buildings	R1,R2	

		Unit VI: Retrofitting Measure for Traditionally Built Construction	• Introduction, need of retrofitting • Retrofitting materials • Retrofitting measure of traditionally built construction ♣ Retrofitting of masonry buildings ♣ Retrofitting of concrete structure ♣ Retrofitting of low-cost buildings		
5	2 WEEKS	Unit VII: Disaster Management	• Disaster rescue • Psychology of rescue, rescue workers, rescue plan, rescue by steps, rescue equipment • Safeties in rescue operations • Debris clearance • Causality management	R1,R2	

REFERENCE RESOURCES

- Elements of Earthquake Engineering by Jai Krishana and AR Chander sekaran; Sarita Parkashan, Meerut.
- Building Construction by BL Gupta and NL Arora, Satya Prakashan, New Delhi

Signature of Teacher

Signature of H.O.D/OIC