



**LESSON PLAN - TH.3, ADVANCED CONSTRUCTION TECHNIQUES & EQUIPMENT, SESSION -2025-2026 (SUMMER 2026) BATCH-2023-2026(6th Semester)**

Discipline: civil engineering	Semester: 6TH	Name of the Teaching Faculty: Swastik Pradhan, (Lect. Stage-II In Civil Engg.)
Subject: TH.3- ADVANCED CONSTRUCTION TECHNIQUES & EQUIPMENT	No. of days/ per week class allotted: 4	Semester From Date :22-12-2025 to Date: 18-04-2026 No. of Weeks: 15
Week	Class Day	Theory/ Practical Topics
		<b>1 Advanced construction materials</b>
1ST	1	1.1 Fibers and Plastics-Types of fibers- Steel, Carbon, glass fibers, Use of fibers as construction material, properties of Fibers.
	2	1.1 Fibers and Plastics-Types of fibers- Steel, Carbon, glass fibers, Use of fibers as construction material, properties of Fibers.
	3	Types of plastics- PVC, RPVC, HDPE, FRP, GRP etc. Colored plastic sheets. Use of plastic as construction material.
	4	Types of plastics- PVC, RPVC, HDPE, FRP, GRP etc. Colored plastic sheets. Use of plastic as construction material.
2ND	1	1.2 Artificial Timbers – Properties and uses of artificial timber. Types of artificial timber available in market, strength of artificial timber.
	2	1.2 Artificial Timbers – Properties and uses of artificial timber. Types of artificial timber available in market, strength of artificial timber.
	3	1.2 Artificial Timbers – Properties and uses of artificial timber. Types of artificial timber available in market, strength of artificial timber.
	4	1.3 Miscellaneous materials – Properties and uses of acoustics materials, wall claddings, plaster boards, micro-silica, artificial sand, bonding agents, adhesives etc.
3RD	1	1.3 Miscellaneous materials – Properties and uses of acoustics materials, wall claddings, plaster boards, micro-silica, artificial sand, bonding agents, adhesives etc.
	2	1.3 Miscellaneous materials – Properties and uses of acoustics materials, wall claddings, plaster boards, micro-silica, artificial sand, bonding agents, adhesives etc.
		<b>2 Prefabrication</b>
	3	2.1 Introduction, necessity and scope of prefabrication of buildings, history of prefabrication, current uses of prefabrication , types of prefabricated systems, classification of prefabrication, advantages and disadvantages of prefabrication,
	4	2.1 Introduction, necessity and scope of prefabrication of buildings, history of prefabrication, current uses of prefabrication , types of prefabricated systems, classification of prefabrication, advantages and disadvantages of prefabrication,
4TH	1	2.1 Introduction, necessity and scope of prefabrication of buildings, history of prefabrication, current uses of prefabrication , types of prefabricated systems, classification of prefabrication, advantages and disadvantages of prefabrication,
	2	2.1 Introduction, necessity and scope of prefabrication of buildings, history of prefabrication, current uses of prefabrication , types of prefabricated systems, classification of prefabrication, advantages and disadvantages of prefabrication,
	3	2.2 The theory and process of prefabrication, design principle of prefabricated systems, types of prefabricated elements, modular coordination
	4	2.2 The theory and process of prefabrication, design principle of prefabricated systems, types of prefabricated elements, modular coordination
5TH	1	2.2 The theory and process of prefabrication, design principle of prefabricated systems, types of prefabricated elements, modular coordination
	2	2.3 Indian standard recommendation for modular planning.
		<b>3 Earthquake Resistant Construction</b>
	3	3.1 Building Configuration
	4	3.2 Lateral Load resisting structures
6TH	1	3.3 Building characteristics

	2	3.4 Effect of structural irregularities-vertical irregularities, plan configuration problems.
	3	3.5 Safety consideration during additional construction and alteration of existing Buildings.
	4	3.5 Safety consideration during additional construction and alteration of existing Buildings.
7TH	1	3.6 Additional strengthening measures in masonry building-corner reinforcement, lintel band, sill band, plinth band, roof band, gable band etc.
	2	3.6 Additional strengthening measures in masonry building-corner reinforcement, lintel band, sill band, plinth band, roof band, gable band etc.
		<b>4 Retrofitting of Structures</b>
	3	4.1 Seismic retrofitting of reinforced concrete buildings :
	4	4.1 Seismic retrofitting of reinforced concrete buildings :
8TH	1	4.2 -Sources of weakness in RC frame building
	2	4.2 -Sources of weakness in RC frame building
	3	4.2 -Sources of weakness in RC frame building
	4	4.3 -Classification of retrofitting techniques and their uses
9TH	1	4.3 -Classification of retrofitting techniques and their uses
	2	4.3 -Classification of retrofitting techniques and their uses
		<b>5 Building Services</b>
	3	5.1 Cold Water Distribution in high rise building, lay out of installation
	4	5.2 Hot water supply – General principles for central plants-layout
10TH	1	5.3 Sanitation –soil and waste water installation in high rise buildings
	2	5.4 Electrical services –i) requirements in high rise buildings ii) Layout of wiring -types of wiring iii) Fuses and their types iv) Earthing and their uses
	3	5.4 Electrical services –i) requirements in high rise buildings ii) Layout of wiring -types of wiring iii) Fuses and their types iv) Earthing and their uses
	4	5.5 Lighting – Requirement of lighting, Measurement of light intensity
		5.6 Ventilation - Methods of ventilation (Natural and artificial Systems of ventilation) problems on ventilation
11TH	1	
	2	5.7 Mechanical Services- Lifts, Escalator, Elevators – types and uses.
		<b>6 Construction and earth moving equipments –</b>
	3	6.1 Planning and selection of construction equipments
	4	6.1 Planning and selection of construction equipments
12TH	1	6.2 Study on earth moving equipments like drag line, tractor, bulldozer, Power shovel
	2	6.2 Study on earth moving equipments like drag line, tractor, bulldozer, Power shovel
	3	6.2 Study on earth moving equipments like drag line, tractor, bulldozer, Power shovel
	4	6.3 Study and uses of compacting equipments like tamping rollers, Smooth wheel rollers, Pneumatic tired rollers and vibrating compactors
13TH	1	6.3 Study and uses of compacting equipments like tamping rollers, Smooth wheel rollers, Pneumatic tired rollers and vibrating compactors
	2	6.3 Study and uses of compacting equipments like tamping rollers, Smooth wheel rollers, Pneumatic tired rollers and vibrating compactors
	3	6.4 Owning and operating cost – problems
	4	6.4 Owning and operating cost – problems
		<b>7 Soil reinforcing techniques</b>
14TH	1	7.1 Necessity of soil reinforcing.
	2	7.1 Necessity of soil reinforcing.
	3	7.2 Use wire mesh and geo-synthetics.
	4	7.2 Use wire mesh and geo-synthetics.
15TH	1	7.3 Strengthening of embankments, Slope stabilization in cutting and embankments by soil reinforcing techniques.
	2	7.3 Strengthening of embankments, Slope stabilization in cutting and embankments by soil reinforcing techniques.
	3	7.3 Strengthening of embankments, Slope stabilization in cutting and embankments by soil reinforcing techniques.
	4	7.3 Strengthening of embankments, Slope stabilization in cutting and embankments by soil reinforcing techniques.