

## ACADEMIC SESSION : SUMMER-2025

Discipline : CIVIL ENGG	Semester : 6TH	Name of the Teaching Faculty : DEBASIS LENKA
Subject : ADVANCED CONSTRUCTION TECHNIQUES & EQUIPMENT	No. of days / week class allotted: 5	Semester From date: 04/02/2025 to 17/05/2025  Nos. of Weeks per semester : 15
Week	Class Day	Theory/ Practical Topics
1 <sup>ST</sup>	1 <sup>st</sup>	Types of fibers- Steel, Carbon,,
	2 <sup>nd</sup>	glass fibers ,Use of fibers as construction material, properties of Fibers.
	3 <sup>rd</sup>	properties of Fibers., Types of plastics- PVC, RPVC, HDPE, FRP, GRP etc. Colored plastic sheets. Use of plastic as construction material.
	4 <sup>th</sup>	Use of plastic as construction material.,
2 <sup>ND</sup>	1 <sup>st</sup>	HDPE, FRP, GRP etc. Colored plastic sheets
	2 <sup>nd</sup>	Use of plastic as construction material.
	3 <sup>rd</sup>	Properties and uses of acoustics materials
	4 <sup>th</sup>	-DO-
3 <sup>RD</sup>	1 <sup>st</sup>	wall claddings, plaster boards
	2 <sup>nd</sup>	micro-silica, artificial sand, bonding agents, adhesives etc.
	3 <sup>rd</sup>	Introduction, necessity and scope of prefabrication of buildings, history of prefabrication,
	4 <sup>th</sup>	current uses of prefabrication , types of prefabricated systems,
4 <sup>TH</sup>	1 <sup>st</sup>	classification of prefabrication, advantages and disadvantages of prefabrication,
	2 <sup>nd</sup>	The theory and process of prefabrication,
	3 <sup>rd</sup>	design principle of prefabricated systems
	4 <sup>th</sup>	types of prefabricated elements,
5 <sup>TH</sup>	1 <sup>st</sup>	modular coordination
	2 <sup>nd</sup>	Indian standard recommendation for modular planning.
	3 <sup>rd</sup>	Building Configuration
	4 <sup>th</sup>	Lateral Load resisting structures
6 <sup>TH</sup>	1 <sup>st</sup>	Building characteristics
	2 <sup>nd</sup>	Effect of structural irregularities-vertical irregularities
	3 <sup>rd</sup>	plan configuration problems.

7 <sup>TH</sup>	4 <sup>TH</sup>	Safety consideration during additional construction and alteration of existing Buildings
	1 <sup>ST</sup>	Additional strengthening measures in masonry building- corner reinforcement,
	2 <sup>ND</sup>	lintel band, sill band, plinth band, roof band, gable band etc
	3 <sup>RD</sup>	Intoduction on Retrofitting of Structures
8 <sup>TH</sup>	4 <sup>TH</sup>	Seismic retrofitting of reinforced concrete buildings :
	1 <sup>ST</sup>	Seismic retrofitting of reinforced concrete buildings :
	2 <sup>ND</sup>	Seismic retrofitting of reinforced concrete buildings :
	3 <sup>RD</sup>	Sources of weakness in RC frame building
9 <sup>TH</sup>	4 <sup>TH</sup>	Sources of weakness in RC frame building
	1 <sup>ST</sup>	Classification of retrofitting techniques and their uses
	2 <sup>ND</sup>	Classification of retrofitting techniques and their uses
	3 <sup>RD</sup>	Intoduction on Building Services
10 <sup>TH</sup>	4 <sup>TH</sup>	Cold Water Distribution in high rise building, lay out of installation
	1 <sup>ST</sup>	Hot water supply – General principles for central plants- layout
	2 <sup>ND</sup>	Sanitation –soil and waste water installation in high rise buildings
	3 <sup>RD</sup>	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
11 <sup>TH</sup>	4 <sup>TH</sup>	Lighting – Requirement of lighting, Measurement of light intensity
	1 <sup>ST</sup>	Ventilation - Methods of ventilation (Natural and artificial Systems of ventilation) problems on ventilation
	2 <sup>ND</sup>	Mechanical Services- Lifts, Escalator, Elevators – types and uses
	3 <sup>RD</sup>	Intoduction on Construction and earth moving equipments ,
12 <sup>TH</sup>	4 <sup>TH</sup>	Planning and selection of construction equipments
	1 <sup>ST</sup>	Study on earth moving equipments
	2 <sup>ND</sup>	tractor, bulldozer
	3 <sup>RD</sup>	Power shovel
13 <sup>TH</sup>	4 <sup>TH</sup>	Study and uses of compacting equipments
	1 <sup>ST</sup>	tamping rollers, Smooth wheel rollers
	2 <sup>ND</sup>	tamping rollers, Smooth wheel rollers
	3 <sup>RD</sup>	Pneumatic tired rollers and vibrating compactors

	4 <sup>th</sup>	Owning and operating cost – problems
14 <sup>th</sup>	1 <sup>st</sup>	Intoduction on Soil reinforcing techniques
	2 <sup>nd</sup>	Necessity of soil reinforcing
	3 <sup>rd</sup>	Necessity of soil reinforcing
	4 <sup>th</sup>	Use wire mesh and geo-synthetics
15 <sup>th</sup>	1 <sup>st</sup>	Use wire mesh and geo-synthetics
	2 <sup>nd</sup>	Strengthening of embankments
	3 <sup>rd</sup>	Slope stabilization in cutting and embankments by soil reinforcing techniques
	4 <sup>th</sup>	NUMERICALS

Prepared By:

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24.02.25

Approved By:

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24/02/25

HOD(Civil)