Badriprasad Institute of Technology, Sambalpur

Lesson plan for Theory -3, Advanced Construction Techniques & Equipment

Semester & Branch : 6th Sem Civil Engineering **Total Periods-60**

Name of the faculty : Mr. Firoz Kumar Patel **No of periods /week-4**

WEEK	CLASS DAY	THEORY TOPICS
1ST	1ST	**Fibers and Plastics-**
		Types of fibers- Steel, Carbon,
	2ND	glass fibers,
	3RD	Use of fibers as construction material, properties of Fibers.
	4TH	Types of plastics- PVC, RPVC, HDPE, FRP, GRP etc.
2ND	1ST	Colored plastic sheets
	2ND	. Use of plastic as construction material.
	3RD	Artificial Timbers – Properties and uses of artificial timber.
	4TH	Types of artificial timber available in market,
3RD	1ST	strength of artificial timber.
	2ND	Miscellaneous materials – Properties and uses of acoustics materials,
	3RD	wall claddings,
	4TH	plaster boards, micro-silica,
4TH	1ST	artificial sand,
	2ND	bonding agents,.
	3RD	adhesives etc
	4TH	**Prefabrication**
		Introduction, necessity and scope of prefabrication of buildings,
5TH	1ST	history of prefabrication, current uses of prefabrication
	2ND	types of prefabricated systems
	3RD	classification of prefabrication
	4TH	advantages and disadvantages of prefabrication,
6TH	1ST	The theory and process of prefabrication,
	2ND	Indian standard recommendation for modular planning.
	3RD	modular coordination
	4TH	types of prefabricated elements,
7TH	1ST	design principle of prefabricated systems,
	2ND	**Earthquake Resistant Construction**
		Building Configuration
	3RD	Lateral Load resisting structures
	4TH	Building characteristics
8TH	1ST	Effect of structural irregularities-vertical irregularities,
	2ND	plan configuration problems.
	3RD	Safety consideration during additional construction and
	4TH	alteration of existing Buildings.

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9TH	1ST	Additional strengthening measures in masonry building-corner reinforcement
	2ND	sill band, plinth band, roof band, gable band
	3RD	lintel band
	4TH	**Retrofitting of Structures**
		Seismic retrofitting of reinforced concrete buildings :
10TH	1ST	-Sources of weakness in RC frame building
	2ND	Classification of retrofitting techniques and their uses
	3RD	**Building Services**
		Cold Water Distribution in high rise building, lay out of installation
	4TH	Continue of 3rd Class
11TH	1ST	Hot water supply – General principles for central plants-layout
	2ND	Sanitation –soil and waste water installation in high rise buildings
	3RD	Electrical services – i) requirements in high rise buildings ii) Layout of wiring -
	4TH	types of wiring iii) Fuses and their types iv)Earthing and their uses
12TH	1ST	Lighting – Requirement of lighting, Measurement of light intensity
	2ND	Ventilation - Methods of ventilation (Natural and artificial Systems of ventilation)
		problems on ventilation
	3RD	Mechanical Services- Lifts, Escalator
		Elevators – types and uses.
	4TH	**Construction and earth moving equipments –**
		Planning and selection of construction equipments
13TH	1ST	Study on earth moving equipments like drag line,
	2ND	tractor, bulldozer, Power shovel
	3RD	Study and uses of compacting equipments like tamping rollers
	4TH	Smooth wheel rollers
		Pneumatic tired rollers and
14TH	1ST	Owning and operating cost – problems
	2ND	vibrating compactors
	3RD	**Soil reinforcing techniques**
	4TH	Necessity of soil reinforcing.
15TH	1ST	Use wire mesh and geo-synthetics.
	2ND	Strengthening of embankments
	3RD	embankments by soil reinforcing techniques
	4TH	Slope stabilization in cutting

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