SPINTRONIC TECHNOLOGY AND ADVANCE RESEARCH,BHUBANESWAR

SUBJECT: HIGHWAY ENGINEERING

LESSON PLAN SESSION- 2024-25,

SEMESTER 6TH DEPT:CIVILENGINEERING

NAME OF THE FACULTY: URBI ROUT

SL. NO.	WEEK	TOPICS PLANNED TO BE COVERED	Total no of periods	Cumulative no of periods
01	01	**1 Advanced construction materials** 1.1 Fibers and PlasticsTypes of fibers- Steel, Carbon, glass fibers, Use of fibers as construction material, properties of Fibers.	**1**	**1**
		Fibers and PlasticsTypes of fibers- Steel, Carbon, glass fibers, Use of fibers as construction material, properties of Fibers.	1	2
		Fibers and PlasticsTypes of fibers- Steel, Carbon, glass fibers, Use of fibers as construction material, properties of Fibers.	1	3
		Fibers and PlasticsTypes of fibers- Steel, Carbon, glass fibers, Use of fibers as construction material, properties of Fibers.	1	4
02	02	Types of plastics- PVC, RPVC, HDPE, FRP, GRP etc. Colored plastic sheets. Use of plastic as construction material.	1	5
		Types of plastics- PVC, RPVC, HDPE, FRP, GRP etc. Colored plastic sheets. Use of plastic as construction material.	1	6
		Types of plastics- PVC, RPVC, HDPE, FRP, GRP etc. Colored plastic sheets. Use of plastic as construction material.	1	7
		Types of plastics- PVC, RPVC, HDPE, FRP, GRP etc. Colored plastic sheets. Use of plastic as construction material.	1	8
03	03	1.2 Artificial Timbers – Properties and uses of artificial timber	1	9
		1.2 Artificial Timbers – Properties and uses of artificial timber	1	10
		1.2 Artificial Timbers – Properties and uses of artificial timber	1	11
		1.2 Artificial Timbers – Properties and uses of artificial timber	1	12
04	04	Types of artificial timber available in market, strength of artificial timber.	1	13
		Types of artificial timber available in market, strength of artificial timber.	1	14
		Types of artificial timber available in market, strength of artificial timber.	1	15

		1.3 Miscellaneous materials – Properties and uses of acoustics materials, wall claddings, plaster boards, micro-silica, artificial sand, bonding agents, adhesives etc.	1	16

05	05	1.3 Miscellaneous materials – Properties and uses of acoustics materials, wall claddings, plaster boards, micro-silica, artificial sand, bonding agents, adhesives etc.	1	17
		1.3 Miscellaneous materials – Properties and uses of acoustics materials, wall claddings, plaster boards, micro-silica, artificial sand, bonding agents, adhesives etc.	1	18
		2. Prefabrication 2.1 Introduction, necessity and scope of prefabrication of buildings, history of prefabrication.	**1**	**19**
		2.1 Introduction, necessity and scope of prefabrication of buildings, history of prefabrication.	1	20
06	06	2.1 Introduction, necessity and scope of prefabrication of buildings, history of prefabrication.	1	21
		Current uses of prefabrication , types of prefabricated systems, classification of prefabrication, advantages and disadvantages of prefabrication	1	22
		Current uses of prefabrication , types of prefabricated systems, classification of prefabrication, advantages and disadvantages of prefabrication	1	23
		Current uses of prefabrication , types of prefabricated systems, classification of prefabrication, advantages and disadvantages of prefabrication	1	24
07	07	2.2 The theory and process of prefabrication, design principle of prefabricated systems, types of prefabricated elements, modular coordination	1	25
		2.2 The theory and process of prefabrication, design principle of prefabricated systems, types of prefabricated elements, modular coordination	1	26
		2.2 The theory and process of prefabrication, design principle of prefabricated systems, types of prefabricated elements, modular coordination	1	27
		2.3 Indian standard recommendation for modular planning.	1	28
08	08	2.3 Indian standard recommendation for modular planning.	1	29
		2.3 Indian standard recommendation for modular planning.	1	30
		3. Earthquake Resistant Construction 3.1 Building Configuration	**1**	**31**
		3.1 Building Configuration	1	32
09	09	3.2 Lateral Load resisting structures	1	33
		3.2 Lateral Load resisting structures	1	34
		3.3 Building characteristics	1	35
		3.3 Building characteristics	1	36
		3.4 Effect of structural irregularities-vertical irregularities, plan configuration problems.	1	37

10	10	3.4 Effect of structural irregularities-vertical irregularities, plan configuration problems.	1	38
		3.5 Safety consideration during additional construction and alteration of existing Buildings.	1	39
		3.5 Safety consideration during additional construction and alteration of existing Buildings.	1	40
11	11	3.6 Additional strengthening measures in masonry building-corner reinforcement, lintel band, sill band, plinth band, roof band, gable band etc.	1	41
		3.6 Additional strengthening measures in masonry building-corner reinforcement, lintel band, sill band, plinth band, roof band, gable band etc.	1	42
		4 Retrofitting of Structures	**1**	**43**
		4.1 Seismic retrofitting of reinforced concrete buildings	1	44
12	12	4.2 -Sources of weakness in RC frame building	1	45
		4.3 -Classification of retrofitting techniques and their uses	1	46
		5 Building Services 5.1 Cold Water Distribution in high rise building, lay out of installation 5.2 Hot water supply – General principles for central plants-layout 5.3 Sanitation –soil and waste water installation in high rise buildings	**1**	**47**
		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 5.5 Lighting – Requirement of lighting, Measurement of light intensity	1	48
13	13	5.6 Ventilation - Methods of ventilation (Natural and artificial Systems of ventilation) problems on ventilation 5.7 Mechanical Services- Lifts, Escalator, Elevators – types and uses	1	49
		6 Construction and earth moving equipments – 6.1 Planning and selection of construction equipments	**1**	**50**
		6.2 Study on earth moving equipments like drag line, tractor, bulldozer, Power shovel	1	51
		6.3 Study and uses of compacting equipments like tamping rollers, Smooth wheel rollers, Pneumatic tired rollers and vibrating compactors 6.4 Owning and operating cost – problems	1	52
14	14	**7 Soil reinforcing techniques** 7.1 Necessity of soil reinforcing.	**1**	**53**
		7.1 Necessity of soil reinforcing.	1	54
		7.1 Necessity of soil reinforcing.	1	55
		7.2 Use wire mesh and geo-synthetics.	1	56
15	15	7.2 Use wire mesh and geo-synthetics.	1	57
		7.3 Strengthening of embankments, Slope	1	58
		stabilization in cutting and embankments by soil reinforcing techniques.	1	59

		7.3 Strengthening of embankments, Slope stabilization in cutting and embankments by soil reinforcing techniques.	1	60
		7.3 Strengthening of embankments, Slope stabilization in cutting and embankments by soil reinforcing techniques.	1	61

REFERENCE BOOKS:

1. **Agrawal & Shrikhande: Earthquake resistant design of structures: Prentice hall of india pvt.ltd.**
2. **Swami Saran: Reinforced Soil & its engg. App : I.K.International Pvt.Ltd**

FACULTY **HOD**