LESSON PLAN OF 6th SEMESTER CIVIL ENGINEERING

DISCIPLINE :- CIVIL ENGG.	SEMESTER: -6th	NAME OF THE TEACHING FACULTY:- **MISS JYOTIRMAYEE SABAR, SENIOR LECTURER**
SUBJECT:- ADVANCED CONSTRUCTION TECHNIQUES & EQUIPMENT	No of Days/per Week Class Allotted :- 04	SEMESTER FROM:- **04.02.2025 TO 17.05.2025** **SUMMER 2025** NO OF WEEKS:- **15**

Week	Class Day	Theory Topics
1st	1st	**Fibers and Plastics-** Types of fibers- Steel, Carbon, glass fibers
	2nd	Use of fibers as construction material, properties of Fibers
	3rd	Types of plastics- PVC, RPVC, HDPE, FRP, GRP etc. Colored plastic sheets
	4th	Use of plastic as construction material.
2nd	1st	Artificial Timbers – Properties and uses of artificial timber
	2nd	Types of artificial timber available in market, Strength of artificial timber.
	3rd	Types of artificial timber available in market, Strength of artificial timber.
	4th	Miscellaneous materials – Properties and uses of acoustics materials
3rd	1st	Wall claddings, plaster boards, micro-silica
	2nd	Artificial sand, bonding agents, adhesives
	3rd	**Prefabrication-** Introduction, necessity and scope of prefabrication of buildings
	4th	History of prefabrication, current uses of prefabrication
4th	1st	Types of prefabricated systems, classification of prefabrication
	2nd	Advantages and disadvantages of prefabrication,
	3rd	The theory and process of prefabrication
	4th	Design principle of prefabricated systems, types of prefabricated elements
5th	1st	Modular coordination
	2nd	Indian standard recommendation for modular planning
	3rd	**Earthquake Resistant Construction-** Building Configuration
	4th	Lateral Load resisting structures
6th	1st	Building characteristics
	2nd	Effect of structural irregularities-vertical irregularities
	3rd	plan configuration problems
	4th	Safety consideration during additional construction and alteration of existing Buildings.
7th	1st	Additional strengthening measures in masonry building-corner reinforcement, lintel band
	2nd	Sill band, plinth band, roof band, gable band
	3rd	**Retrofitting of Structures-** Seismic retrofitting of reinforced concrete buildings
	4th	Seismic retrofitting of reinforced concrete buildings
8th	1st	Seismic retrofitting of reinforced concrete buildings
	2nd	Seismic retrofitting of reinforced concrete buildings
	3rd	Sources of weakness in RC frame building
	4th	Sources of weakness in RC frame building
9th	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	Hot water supply – General principles for central plants-layout
10th	1st	Sanitation –soil and waste water installation in high rise buildings
	2nd	Electrical services – i) requirements in high rise buildings ii) Layout of wiring - types of wiring
	3rd	Fuses and their types , Earthing and their uses
	4th	Lighting – Requirement of lighting, Measurement of light intensity
11th	1st	Ventilation - Methods of ventilation (Natural and artificial Systems of ventilation) problems on ventilation
	2nd	Mechanical Services- Lifts, Escalator, Elevators – types and uses.
	3rd	**Construction and earth moving equipments-** Planning and selection of construction equipments
	4th	Planning and selection of construction equipments
12th	1st	Study on earth moving equipments like drag line, tractor
	2nd	Bulldozer, Power shovel
	3rd	Study and uses of compacting equipments like tamping rollers, Smooth wheel rollers
	4th	Smooth wheel rollers, Pneumatic tired rollers
13th	1st	Vibrating compactors
	2nd	Owning and operating cost – problems
	3rd	Owning and operating cost – problems
	4th	Owning and operating cost – problems
14th	1st	**Soil reinforcing techniques-** Necessity of soil reinforcing
	2nd	Use wire mesh and geo-synthetics.
	3rd	Use wire mesh and geo-synthetics.
	4th	Strengthening of embankments
15th	1st	Strengthening of embankments
	2nd	Slope stabilization in cutting and embankments by soil reinforcing techniques.
	3rd	Slope stabilization in cutting and embankments by soil reinforcing techniques.
	4th	**REVISION, PREVIOUS YEAR QUESTION ANSWER DISCUSSION**

Signature of Faculty 04/02/25

Signature of HOD 04/02/25

LESSON PLAN

Discipline: Civil Engg. GOVT.POLYTECHNIC KALAHANDI

Semester: 6th

Name of the Teaching Facu TAPAS RANJAN MISHRA

Subject: CONSTRUCTION MANAGEMENT (CET-601)

No of Days/week c 4

Discipline; **Civil Engg.**	Semester; **6th**	Name of The Teaching Faculty:- **Tapas Ranjan Mishra**
Subject; CONSTRUCTION MANAGEMENT **Week**	No. of days/per week **Class Day**	Semester From . **Date; 04.02.2025 To Date ;17.05.2025** **Theory/Practical Topics**
1st	1st	**1.0:NTRODUCTION TO CONSTRUCTION MANAGEMENT**
		1.1; Aims and objectives of construction management. 1.2; Functions of construction management.
	2nd	1.3; The construction team components- Owner ,Engineer, Architect, Contractor –their functions and interrelationship and jurisdiction.
	3rd	1.4:Resources for construction management – men, machines, money
	4th	**2.0: Constructional Planning**
		2.1: Importance of construction planning. 2.2: Developing work breakdown structure for construction work.
		2.3: Construction planning stages-pre tender stage, post –tender stage. 2.4: Construction scheduling by Bar charts-preparation of Bar charts for simple construction work.
2nd	1st	2.5: Preparation of schedules for labour materials, machinery, finance for small works. 2.6: Limitation of Bar charts.

	2nd	2.7: Construction scheduling by network techniques-definition of terms, PERT and CPM techniques, advantages and disadvantages of two techniques, network analysis, estimation of time and critical path, application of PERT and CPM techniques in sample construction works.
	3rd	**3.0: Materials and stores Management**
		3.1: Classification of stores- Storage of stock
	4th	3.1: Classification of stores- Storage of stock
		3.2: Issue of materials –Indent ,Invoice ,Bin card

3rd	1st	. 3.3: Stores Accounting Procedure
	2nd	3.4: Inspection of stores ,T&P accounts register ,Procedure of write off.
	3rd	3.4: Inspection of stores ,T&P accounts register ,Procedure of write off.
	4th	**4.0: Construction site Management:**
		4.1: Job lay out-objectives, Review plans, specifications ,lay out of equipments
		4.1: Job lay out-objectives, Review plans, specifications ,lay out of equipments
4th	1st	4.1: Job lay out-objectives, Review plans, specifications ,lay out of equipments
	2nd	4.2: Factors influencing selection ,design and layout of temporary facilities and services at construction site.
	3rd	4.2: Factors influencing selection ,design and layout of temporary facilities and services at construction site.
	4th	4.2: Factors influencing selection ,design and layout of temporary facilities and services at construction site.
		4.3: Principles of storing material at site,
5th	1st	4.3: Principles of storing material at site,
	2nd	4.3: Principles of storing material at site,
	3rd	4.4: Location of equipment, Organizing labour at site.
	4th	4.4: Location of equipment, Organizing labour at site.
		4.4: Location of equipment, Organizing labour at site.

6th	1st	4.5: Job lay out for different construction site,
	2nd	4.5: Job lay out for different construction site,
	3rd	4.5: Job lay out for different construction site,
	4th	**5.0: Construction Organization:**
		5.1: Introduction – Characteristics, Structure, importance, 5.2: Organization types – line and staff, functions and their characteristics
		5.3: Principles of Organization – Meaning and significance of terms- control, authority, responsibility ,job & task.
7th	1st	5.4: Leadership- necessity, styles of leadership, role of leader.
	2nd	5.5: Principles of effective supervision.
	3rd	5.6: Human relations – relations with subordinate, peers, supervisors, characteristics of group behavior, mob psychology, handling of grievances, absenteeism, labour welfare.
	4th	5.7: Conflicts in organization – genesis of conflicts, types- intrapersonal, intergroup, resolving conflicts.
		6.0: Construction Labour and Labour Management:
		6.1: Preparing labour schedule
8th	1st	6.2: Essential steps for optimum labour output.
	2nd	6.3: Labour characteristics
	3rd	6.4: Wages & their payment
	4th	6.5: Labour incentives
		6.6: Motivation –Classification of motives, different approaches to motivation.
9th	1st	. 6.7: Morale
	2nd	6.8: Relevant labour laws and case studies related to labour disputes.
	3rd	**7.0: Equipment Management**
		7.1: Preparing the equipment schedule.
	4th	7.2: Identification of different alternative equipment.
		7.3: Importance of Owning & operating costs in making decisions for hiring & purchase of equipment.
10th	1st	7.3: Importance of Owning & operating costs in making decisions for hiring & purchase of equipment.

	2nd	7.4: Inspection and testing of equipment.
	3rd	7.4: Inspection and testing of equipment.
	4th	7.5; Equipment maintenance and minor repairs
		7.5; Equipment maintenance and minor repairs
11th	1st	**8.0: Quality Control:**
		8.1: Concept of quality in construction .
	2nd	8.1: Concept of quality in construction .
	3rd	8.1: Concept of quality in construction .
	4th	8.1: Concept of quality in construction .
		8.1: Concept of quality in construction .
12th	1st	8.2: Quality Standards – during construction ,after construction, destructive & non destructive methods.
	2nd	8.2: Quality Standards – during construction ,after construction, destructive & non destructive methods.
	3rd	8.2: Quality Standards – during construction ,after construction, destructive & non destructive methods.
	4th	8.2: Quality Standards – during construction ,after construction, destructive & non destructive methods.
		8.2: Quality Standards – during construction ,after construction, destructive & non destructive methods.
13th	1st	8.2: Quality Standards – during construction ,after construction, destructive & non destructive methods.
	2nd	8.2: Quality Standards – during construction ,after construction, destructive & non destructive methods.
	3rd	**9.0: Monitoring Progress:**
		9.1: Programme and progress of work.
	4th	9.1: Programme and progress of work.
		9.2: Work study.
14th	1st	9.3: Analysis and control of physical and financial progress corrective measures.
	2nd	9.3: Analysis and control of physical and financial progress corrective measures.
	3rd	9.3: Analysis and control of physical and financial progress corrective measures.

	4th	9.3: Analysis and control of physical and financial progress corrective measures.
		10..0:Safety Management In Construction:
		10.1: Importance of safety
15th	1st	10.2: Causes and effects of accidents in construction works
	2nd	10.3: Safety measures in worksites for excavation, scaffolding, formwork, fabrication and errection, demolition.
	3rd	10.3: Safety measures in worksites for excavation, scaffolding, formwork, fabrication and errection, demolition.
	4th	10.4: Development of safety consciousness
		10.5: Safety legislation – Workman's compensation act, contract labour act.

Signature of Faculty **Signature of HOD:** 04/02/25

LESSON PLAN OF 6th SEMESTER CIVIL ENGINEERING

Discipline :- CIVIL	Semester :-6th	Name of the Teaching Faculty:- SWAYAN RANJAN MISRA
Subject: CONCRETE TECHNOLOGY	No of Days/per Week Class Allotted :- 04	Semester From:- 4th Feb, 2025 To:- 17th May, 2025 No of Weeks:- 16

Week	Class Day	Theory Topics
1st	1st	**Introduction to Concrete as a construction material** Grades of concrete,
	2nd	Advantages and disadvantages of concrete
	3rd	Composition of Cement
	4th	hydration of cement, water cement ratio
2nd	1st	compressive strength , fineness of cement, setting time, soundness,
	2nd	types of cement
	3rd	Classification and characteristics of aggregate
	4th	fineness modulus, grading of aggregate,I.S.383
3rd	1st	Quality of water for mixing and curing.
	2nd	Important functions, classification of admixtures, I.S 9103
	3rd	accelerating admixtures, retarding admixtures
	4th	accelerating admixtures, retarding admixtures
4th	1st	Concept of fresh concrete
	2nd	workability
	3rd	slump test
	4th	compacting factor test
5th	1st	V-bee consistency test and flow test
	2nd	Requirement of workability, I.S.1199.
	3rd	Cube and cylinder compressive strengths
	4th	flexural strength of concrete
6th	1st	stress-strain and elasticity of concrete
	2nd	phenomena of creep and shrinkage,
	3rd	Permeability, durability of concrete,
	4th	sulphate, chloride and acid attack on concrete,
7th	1st	efflorescence
	2nd	Introduction to Concrete mix Design ,Data or input required for mix design
	3rd	Nominal mix concrete &design mix concrete.
	4th	Basic consideration for concrete mix design

	1st	Methods of proportioning concrete mix – I.S Code method of mix design(I.S.10262)
	2nd	Methods of proportioning concrete mix – I.S Code method of mix design(I.S.10262)
	3rd	Batching of materials, mixing of concrete materials
	4th	transportation, placing of concrete, c
9th	1st	compaction of concrete (vibrators)
	2nd	Curing of concrete
	3rd	Formwork-requirements and types
	4th	Stripping of forms. (Concepts only)
10th	1st	Quality control of Concrete as per I.S.456
	2nd	Factors causing the variations in the quality of concrete
	3rd	Mixing, Transporting of Concrete as per I.S.456.
	4th	Placing &curing requirements of Concrete as per I.S.456.
11th	1st	Inspection and Testing as per Clause 17 of IS:456
	2nd	Durability requirements of Concrete as per I.S:456
	3rd	Introduction to ready mix concrete
	4th	High performance concrete
12th	1st	Silica fume concrete
	2nd	Shot-Crete concrete or gunitting (Concepts only).
	3rd	Types of deterioration
	4th	prevention of concrete deterioration
13th	1st	Effect of corrosion of reinforcement
	2nd	Prevention of corrosion of reinforcement
	3rd	Symptoms of defects during construction
	4th	Causes of defects during construction
14th	1st	Prevention of defects during construction
	2nd	cracking of concrete due to different reasons
	3rd	Repair of cracks for different purposes
	4th	Repair of cracks for different purposes
15th	1st	selection of techniques for Repair of cracks
	2nd	selection of techniques for Repair of cracks
	3rd	Polymer based repairs
	4th	Common types of repairs
16th	1st	**DOUBT CLEARING CLASS AND REVISION & PREVIOUS FIVE YEARS QUESTION ANSWER DISCUSSION**
	2nd	
	3rd	
	4th	

04/02/25

Signature of Lecturer

Signature of H.O.D 04/02/25