

LESSON PLAN OF 6th SEMESTER CIVIL ENGINEERING

Discipline :- CIVIL	Semester :-6 th	Name of the Teaching Faculty:- SWAYAN RANJAN MISRA, LECTURER (STAGE-II) CIVIL ENGG. DEPARTMENT
Subject: CONCRETE TECHNOLOGY	No of Days/per Week Class Allotted :- 04	Semester From:- <u>22/12/2025</u> To:- <u>18/04/2026</u> No of Weeks:- 15
Week	Class Day	Theory Topics
1 st	1 st	Introduction to Concrete as a construction material Grades of concrete,
	2 nd	Advantages and disadvantages of concrete
	3 rd	Composition of Cement
	4 th	Hydration of cement, water cement ratio
2 nd	1 st	Compressive strength , fineness of cement, setting time, soundness,
	2 nd	Types of cement
	3 rd	Classification and characteristics of aggregate
	4 th	Fineness modulus, grading of aggregate, I.S.383
3 rd	1 st	Quality of water for mixing and curing.
	2 nd	Important functions, classification of admixtures, I.S 9103
	3 rd	Accelerating admixtures, retarding admixtures
	4 th	Accelerating admixtures, retarding admixtures
4 th	1 st	Concept of fresh concrete
	2 nd	Workability
	3 rd	Slump test
	4 th	Compacting factor test
5 th	1 st	V-bee consistency test and flow test
	2 nd	Requirement of workability, I.S.1199.
	3 rd	Cube and cylinder compressive strengths
	4 th	Flexural strength of concrete
6 th	1 st	Stress-strain and elasticity of concrete
	2 nd	Phenomena of creep and shrinkage,
	3 rd	Permeability, durability of concrete,
	4 th	Sulphate, chloride and acid attack on concrete,
7 th	1 st	Efflorescence
	2 nd	Introduction to Concrete mix Design ,Data or input required for mix design
	3 rd	Nominal mix concrete & design mix concrete.
	4 th	Basic consideration for concrete mix design

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

Signature of Lecturer

Signature of H.O.D

LESSON PLAN OF 6th SEMESTER CIVIL ENGINEERING

DISCIPLINE:- CIVIL ENGG.	SEMESTER: -6 th	NAME OF THE TEACHING FACULTY:- MISS JYOTIRMAYEE SABAR, SENIOR LECTURER
SUBJECT:- ADVANCED CONSTRUCTION TECHNIQUES & EQUIPMENT TH:3	No of Days/per Week Class Allotted :- 04	SEMESTER FROM:- 22.12.2025 TO 18.04.2026 . SUMMER 2026 NO OF WEEKS:- 15
Week	Class Day	Theory Topics
1 st	1 st	CH-1 Fibers and Plastics- Types of fibers- Steel, Carbon, glass fibers
	2 nd	Use of fibers as construction material, properties of Fibers
	3 rd	Types of plastics- PVC, RPVC, HDPE, FRP, GRP etc. Colored plastic sheets
	4 th	Use of plastic as construction material.
2 nd	1 st	Artificial Timbers – Properties and uses of artificial timber
	2 nd	Types of artificial timber available in market, Strength of artificial timber.
	3 rd	Types of artificial timber available in market, Strength of artificial timber.
	4 th	Miscellaneous materials – Properties and uses of acoustics materials
3 rd	1 st	Wall claddings, plaster boards, micro-silica
	2 nd	Artificial sand, bonding agents, adhesives
	3 rd	CH-2 Prefabrication- Introduction, necessity and scope of prefabrication of buildings
	4 th	History of prefabrication, current uses of prefabrication
4 th	1 st	Types of prefabricated systems, classification of prefabrication
	2 nd	Advantages and disadvantages of prefabrication,
	3 rd	The theory and process of prefabrication
	4 th	Design principle of prefabricated systems, types of prefabricated elements
5 th	1 st	Modular coordination
	2 nd	Indian standard recommendation for modular planning
	3 rd	CH-3 Earthquake Resistant Construction- Building Configuration
	4 th	Lateral Load resisting structures
6 th	1 st	Building characteristics
	2 nd	Effect of structural irregularities-vertical irregularities
	3 rd	plan configuration problems
	4 th	Safety consideration during additional construction and alteration of existing Buildings.
7 th	1 st	Additional strengthening measures in masonry building-corner reinforcement, lintel band
	2 nd	Sill band, plinth band, roof band, gable band
	3 rd	CH-4 Retrofitting of Structures- Seismic retrofitting of reinforced concrete buildings
	4 th	Seismic retrofitting of reinforced concrete buildings
8 th	1 st	Seismic retrofitting of reinforced concrete buildings
	2 nd	Seismic retrofitting of reinforced concrete buildings
	3 rd	Sources of weakness in RC frame building
	4 th	Sources of weakness in RC frame building
9 th	1 st	Sources of weakness in RC frame building

	2 nd	Classification of retrofitting techniques and their uses
	3 rd	CH-5
		Building Services- Cold Water Distribution in high rise building, lay out of installation
	4 th	Hot water supply – General principles for central plants-layout
10 th	1 st	Sanitation –soil and waste water installation in high rise buildings
	2 nd	Electrical services – i) requirements in high rise buildings ii) Layout of wiring - types of wiring
	3 rd	Fuses and their types , Earthing and their uses
	4 th	Lighting – Requirement of lighting, Measurement of light intensity
11 th	1 st	Ventilation - Methods of ventilation (Natural and artificial Systems of ventilation) problems on ventilation
	2 nd	Mechanical Services- Lifts, Escalator, Elevators – types and uses.
	3 rd	CH-6
		Construction and earth moving equipments- Planning and selection of construction equipments
	4 th	Planning and selection of construction equipments
12 th	1 st	Study on earth moving equipments like drag line, tractor
	2 nd	Bulldozer, Power shovel
	3 rd	Study and uses of compacting equipments like tamping rollers, Smooth wheel rollers
	4 th	Smooth wheel rollers, Pneumatic tired rollers
13 th	1 st	Vibrating compactors
	2 nd	Owning and operating cost – problems
	3 rd	Owning and operating cost – problems
	4 th	Owning and operating cost – problems
14 th	1 st	CH-7
		Soil reinforcing techniques- Necessity of soil reinforcing
	2 nd	Use wire mesh and geo-synthetics.
	3 rd	Use wire mesh and geo-synthetics.
	4 th	Strengthening of embankments
15 th	1 st	Strengthening of embankments
	2 nd	Slope stabilization in cutting and embankments by soil reinforcing techniques.
	3 rd	Slope stabilization in cutting and embankments by soil reinforcing techniques.
	4 th	REVISION, PREVIOUS YEAR QUESTION ANSWER DISCUSSION

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Signature of Concerned Lecturer

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22/12/2025
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LESSON PLAN OF 6th SEMESTER CIVIL ENGINEERING

Discipline:- Civil Engg.	Semester: 6th	Name of The Teaching Faculty:- ASHOK KUMAR RANA , Lect. (Stage-I)
Subject; CONSTRUCTION MANAGEMENT	No. of days/per week class allotted : 04	Semester From Date- 22.12.2025 to Date 18.04.2026 (Summer-2026) No of Weeks : 15
Week	Class Day	Theory Topics
1st	1st	1.0:INTRODUCTION TO CONSTRUCTION MANAGEMENT 1.1; Aims and objectives of construction management.
	2nd	1.2; Functions of construction management.
	3rd	1.3; The construction team components- Owner ,Engineer, Architect, Contractor –their functions and interrelationship and jurisdiction.
	4th	1.4:Resources for construction management – men, machines, money
2nd	1st	2.0: Constructional Planning 2.1: Importance of construction planning.
	2nd	2.2:Developing work breakdown structure for construction work.
	3rd	2.3: Construction planning stages-pre tender stage, post -tender stage.
	4th	2.4: Construction scheduling by Bar charts-preparation of Bar charts for simple construction work.
3rd	1st	2.5: Preparation of schedules for labour materials, machinery, finance for small works.
	2nd	2.6: Limitation of Bar charts.
	3rd	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.
	4th	3.0: Materials and stores Management 3.1: Classification of stores- Storage of stock
4th	1st	Storage of stock
	2nd	3.2: Issue of materials –Indent ,Invoice ,Bin card
	3rd	Issue of materials –Indent ,Invoice ,Bin card
	4th	4.0: Construction site Management: 4.1: Job lay out-objectives, Review plans, specifications
5th	1st	lay out of equipments
	2nd	4.2: Location of equipment, organizing labour at site.
	3rd	4.3: Job lay out for different construction site.
	4th	4.4: Principles of storing material at site,
6th	1st	5.0: Construction Organization: 5.1 Introduction – Characteristics, Structure, importance,
	2nd	5.2: Organization types – line and staff, functions and their characteristics
	3rd	5.3: Principles of Organization – Meaning and significance of terms-control, authority, responsibility ,job & task.
	4th	5.4: Leadership- necessity, styles of leadership, role of leader.
7th	1st	5.6: Human relations – relations with subordinate, peers, supervisors, characteristics of group behavior, mob psychology,handling of grievances, absenteeism, labour welfare.
	2nd	5.7: Conflicts in organization – genesis of conflicts, types- intrapersonal, intergroup, resolving conflicts.
	3rd	6.0: Construction Labour and Labour Management: 6.1: Preparing labour schedule
	4th	6.2: Essential steps for optimum labour output.
8th	1st	6.3: Labour characteristics
	2nd	6.4: Wages & their payment
	3rd	6.5: Labour incentives
	4th	6.6: Motivation –Classification of motives, different approaches to motivation.

9th	1st	7.0: Equipment Management 7.1: Preparing the equipment schedule.
	2nd	7.2: Identification of different alternative equipment.
	3rd	7.3: Importance of Owning & operating costs in making decisions for hiring & purchase of equipment.
	4th	7.4: Inspection and testing of equipment.
10th	1st	7.5; Equipment maintenance and minor repairs
	2nd	Equipment maintenance and minor repairs
	3rd	8.0: Quality Control:
	4th	8.1: Concept of quality in construction .
11th	1st	8.2: Quality Standards – during construction ,after construction
	2nd	8.2: Quality Standards – during construction ,after construction
	3rd	destructive & non destructive methods.
	4th	9.0: Monitoring Progress:
12th	1st	9.1: Programme and progress of work.
	2nd	9.2: Work study
	3rd	9.2: Work study
	4th	9.3: Analysis and control of physical and financial progress corrective measures.
13th	1st	9.3: Analysis and control of physical and financial progress corrective measures.
	2nd	10..0: Safety Management In Construction: 10.1: Importance of safety
	3rd	10.2: Causes and effects of accidents in construction works
	4th	10.3: Safety measures in worksites for excavation, scaffolding, formwork, fabrication and erection, demolition.
14th	1st	10.4: Development of safety consciousness
	2nd	10.5: Safety legislation – Workman's compensation act, contract labour act.
	3rd	11.Role of Vulnerability Atlas of India in construction projects 11.1 Introduction to Vulnerability Atlas of India, Concepts of natural hazards and disasters and vulnerability profile of India. Definition of disaster related terms
	4th	11.2 Earthquake hazard and vulnerability, Magnitude and intensity scales of earthquake, seismic zones, earthquake hazard maps, types of structures and damage classification, effects in housing and resistant measures.
15th	1st	11.3 Wind / Cyclone hazard and vulnerability, wind speed and pressures, wind hazard and cyclone occurrence maps, storm surveys and cyclone resistant measures
	2nd	11.4 Flood hazard and vulnerability, Flood hazard and Flood prone areas of the country, General protection of habitants and flood resistant construction
	3rd	11.5 Landslides, Tsunamis and Thunderstorm hazards and vulnerability, Landslide & Thunderstorm incidence maps, Measures against Tsunami hazards.
	4th	11.6 Housing vulnerability risk tables and usage of vulnerability atlas of India, Inclusion of vulnerability atlas in Tender documents

Signature of Faculty
22.12.25

Signature of HOD
22/12/25

LESSON PLAN OF 6TH SEMESTER CIVIL ENGINEERING

DISCIPLINE :- CIVIL ENGG.	SEMESTER: -6 TH	NAME OF THE TEACHING FACULTY:- ASHISH KUMAR SINGH BABU
SUBJECT:- Land Survey-II TH:1	No of Days/per Week Class Allotted :- 05	SEMESTER FROM:- 22.12.2025 TO 18.04.2026 SUMMER 2026 NUMBER OF WEEKS:- 15

Week	Class Day	Theory Topics
1 st	1 st	Chapter-1 (TACHEOMETRY) (9Periods) Principles, stadia constants determination
	2 nd	Principles, stadia constants determination
	3 rd	Stadia tachometry with staff held vertical and with line of collimation horizontal or inclined, numerical problems
	4 th	Stadia tachometry with staff held vertical and with line of collimation horizontal or inclined, numerical problems
	5 th	Stadia tachometry with staff held vertical and with line of collimation horizontal or inclined, numerical problems
2 nd	1 st	Stadia tachometry with staff held vertical and with line of collimation horizontal or inclined, numerical problems
	2 nd	Elevation and distances of staff stations – numerical problems
	3 rd	Elevation and distances of staff stations – Numerical problems
	4 th	Elevation and distances of staff stations – numerical problems
	5 th	Chapter-2 (CURVES) (8Periods) compound, reverse and transition curve, Purpose&use of different types of curve in field
3 rd	1 st	compound, reverse and transition curve, Purpose&use of different types of curve in field
	2 nd	Elements of circular curves, numerical problems
	3 rd	Preparation of curve table for setting out

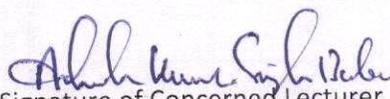
	4 th	Setting out of circular curve by chain and tape and by instrument angular methods (i) offsets from long chord
	5 th	(ii) successive bisection of arc, (iii) offsets from tangents, (iv) offsets from chord produced,
4 th	1 st	(v) Rankin's method of tangent angles (No derivation)
	2 nd	Obstacles in curve ranging – point of intersection inaccessible
	3 rd	Chapter-3 (BASICS ON SCALE AND BASICS OF MAP) (8 Periods) Fractional or Ratio Scale, Linear Scale, Graphical Scale
	4 th	What is Map, Map Scale and Map Projections
	5 th	How Maps Convey Location and Extension
5 th	1 st	How Maps Convey characteristics of features
	2 nd	How Maps Convey Spatial Relationship
	3 rd	Classification of Maps Physical Map Topographic Map
	4 th	Road Map Political Map Economic & Resources Map
	5 th	Thematic Map Climate Map
6 th	1 st	Chapter-4 (SURVEY OF INDIA MAP SERIES) (10 Periods) Open Series map
	2 nd	Defense Series Map
	3 rd	Map Nomenclature
	4 th	Quadrangle Name

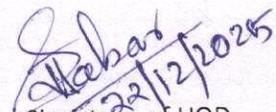
	5 th	Latitude, Longitude, UTM's
7 th	1 st	Contour Lines
	2 nd	Magnetics Declination
	3 rd	Public Land Survey System
	4 th	Field Notes
	5 th	Field Notes
8 th	1 st	Chapter-5 (BASICS OF AERIAL PHOTOGRAPHY, PHOTOGRAMMETRY, DEM AND ORTHOIMAGE GENERATION) (10Periods) Aerial Photography: Film, Focal Length, Scale
	2 nd	Types of Aerial Photographs (Oblique, Straight)
	3 rd	Photogrammetry: Classification of Photogrammetry
	4 th	Aerial Photogrammetry Terrestrial Photogrammetry
	5 th	Photogrammetry Process: Acquisition of Imagery using aerial and satellite platform
9 th	1 st	Control Survey Geometric Distortion in Imagery
	2 nd	Application of Imagery and its support data Orientation and Triangulation Stereoscopic Measurement
	3 rd	19.9.1X-parallax 19.2.2Y-parallax
	4 th	DTM/ DEM Generation

	5 th	Ortho Image Generation
10 th	1 st	Chapter-6 (MODERN SURVEYING METHODS) (10Periods) Principles, features and use of (i) Micro-optic The odolite, digital the odolite
	2 nd	Principles, features and use of (i)Micro-optic theodolite, digital theodolite
	3 rd	Principles, features and use of (i)Micro-optic theodolite, digital theodolite
	4 th	Principles, features and use of (i)Micro-optic theodolite, digital theodolite
	5 th	Principles, features and use of (i)Micro-optic theodolite, digital theodolite
11 th	1 st	Working principles of a Total Station (Setup and use of total station to measure angles, distances of point sunder survey from total station and the co-ordinates (X,Y & Zor northing, easting, and elevation) of surveyed points relative to Total Station Position using trigonometry and triangulation.
	2 nd	Working principle sofa Total Station (Setup and use of total station to measure angles, distances of point sunder survey from total station and the co-ordinates (X,Y & Zornorthing, easting, and elevation) of surveyed points relative to Total Station Position using trigonometry and triangulation.
	3 rd	Working principles of a Total Station (Setup and use of total station to measure angles, distances of point sunder survey from total station and the co-ordinates (X,Y & Zornorthing, easting, and elevation) of surveyed points relative to Total Station Position using trigonometry and triangulation.
	4 th	Working principles of a Total Station (Setup and use of total station to measure Angles, distances of point sunder survey from total station and the co-ordinates (X,Y & Zornorthing, easting, and elevation) of surveyed points relative to Total Station Position using trigonometry and triangulation.
	5 th	Working principles of a Total Station (Setup and use of total station to measure angles, distances of point sunder survey from total station and the co-ordinates (X,Y & Zornorthing, easting, and elevation) of surveyed points relative to Total Station Position using trigonometry and triangulation.
12 th	1 st	Chapter-7 (BASISONGPS&DGPS AND ETS) (10Periods) GPS:- Global Positioning Working Principle of GPS, GPS Signals, Errors of GPS,

		Positioning Methods
	2 nd	DGPS:- Differential Global Positioning System Base Station Setup Rover GPS Setup
	3 rd	Download, Post- Process and Export GPS data Sequence to download GPS data from flashcards Sequence to Post- Process GPS data
	4 th	Sequence to Post- Process GPS data
	5 th	Sequence to export post process GPS data Sequence to export GPS Time tag stofile
13 th	1 st	ETS:- Electronic Total Station Distance Measurement
	2 nd	Angle Measurement Leveling Determining position
	3 rd	Leveling Determining position
	4 th	Reference networks Error sand Accuracy
	5 th	Reference networks Error sand Accuracy
14 th	1 st	Chapter-8 (BASICS OF GIS AND MAP PREPARATION USING GIS) (10 Periods) Components of GIS, Integration of Spatial and Attribute Information Three Views of Information System
	2 nd	Data base or Table View, Map View and Model View
	3 rd	Spatial Data Model
	4 th	Attribute Data Management and Meta data Concept

	5 th	Prepare data and adding to Arc Map.
15 th	1 st	Organizing data as layers.
	2 nd	Editing the layers.
	3 rd	Switching to Layout View.
	4 th	Change page orientation. Removing Borders
	5 th	Adding and editing map information. Finalize the map


 Signature of Concerned Lecturer
 21/12/2025


 Signature of HOD
 22/12/2025