

LESSON PLAN OF 3rd SEMESTER CIVIL ENGINEERING(2026-27)

Discipline :- CIVIL	Semester:-3 rd	Name of the Teaching Faculty: SUBHASHMITA NAIK
Subject:- Building construction	No of Days/per Week Class Allotted :-03	Semester From:- 1st JULY 2026 To:- 5th NOVEMBER 2026 No of Weeks:- 15
Week	Class Day	Theory/ Practical Topics
1 st	1 st	1.0 Overview of Building Components • Classification of Buildings as per National Building Code Group A to I, as per Types of Constructions- Load Bearing Structure, Framed Structure, Composite Structure. .
	2 nd	• Building Components – Functions of Building Components, substructure – Foundation, Plinth.
	3 rd	• Superstructure – Walls, Partition wall, Cavity wall, Sill, Lintel, Doors and Windows, Floor, Mezzanine floor, Roof, Columns, Beams, Parapet
2 nd	1 st	2.0 Construction of Substructure • Job Layout: Site Clearance, Layout for Load Bearing Structure and Framed Structure by Center Line and Face Line Method, Precautions.
	2 nd	• Earthwork: Excavation for Foundation, Timbering and Strutting, Earthwork for embankment,
	3 rd	Material for plinth Filling, Tools and plants used for earthwork.
3 rd	1 st	• Foundation: Functions of foundation,
	2 nd	• Types of foundation – Shallow Foundation, Stepped Footing, Wall Footing, Column Footing, Isolated and Combined Column Footing, Raft Foundation, Grillage Foundation.
	3 rd	• Deep Foundation – Pile Foundation, Well foundation and Caissons, Pumping Methods of Dewatering, Deep wells, Well points, Cofferdams (Introduction only).
4 th	1 st	MONTHLY CLASS TEST -1
	2 nd	3.0 Construction of Superstructure • Stone Masonry: Terms used in stone masonry- facing, backing, hearting, through stone, corner stone, cornice.
	3 rd	Types of stone masonry: Rubble masonry, Ashlar Masonry and their types. Joints in stone masonry and their purpose.
5 th	1 st	Selection of Stone Masonry, Precautions to be taken in Stone Masonry Construction.
	2 nd	• Brick masonry: Terms used in brick masonry- header, stretcher, closer, quoins, course, face, back, hearting, bat bond, joints, lap, frog line, level and plumb
	3 rd	Bonds in brick masonry- header bond, stretcher bond, English bond and Flemish bond.

6 th	1 st	Requirements of good brick masonry. Junctions in brick masonry and their purpose and procedure.
	2 nd	Precautions to be observed in Brick Masonry Construction. Comparison between stone and Brick Masonry.
	3 rd	Tools and plants required for construction of stone and brick masonry.
7 th	1 st	Hollow concrete block masonry and composite masonry.
	2 nd	• Scaffolding and Shoring: Purpose, Types of Scaffolding, Process of Erection and Dismantling. Purpose and Types of Shoring, Underpinning.
	3 rd	Formwork: Definition of Formwork, Requirements of Formwork, Materials used in Formwork, Types of Formwork, Removal of formwork.
8 th	1 st	MONTHLY CLASS TEST -2
	2 nd	4.0 Building Communication and Ventilation • Horizontal Communication: Doors –Components of Doors, Full Paneled Doors, Partly Paneled and Glazed Doors, Flush Doors.
	3 rd	Collapsible Doors, Rolling Shutters, Revolving Doors, Glazed Doors. Sizes of Door recommended by BIS.
9 th	1 st	• Windows: Component of windows, Types of Windows – Full Paneled, Partly Paneled and Glazed, wooden, Steel, Aluminum windows, Sliding Windows.
	2 nd	Louvered Window, Bay window, Corner window, clear storey window, Gable and Dormer window, Skylight. Sizes of Windows recommended by BIS. Ventilators.
	3 rd	• Fixtures and fastenings for doors and windows
10 th	1 st	• Material used and functions of Window Sill and Lintels, Shed / Chajja. Vertical Communication: Means of Vertical Communication- Stair Case, Ramps, Lift, Elevators and Escalators.
	2 nd	Terms used in staircase steps, tread, riser, nosing, soffit, waist slab, baluster, balustrade, scotia, hand rails, newel post, landing, headroom, winder
	3 rd	. Types of staircase (On the basis of shape): Straight, dog-legged, open well, Spiral, quarter turn, bifurcated, Three quarter turn and Half turn, (On the basis of Material): Stone, Brick, R.C.C., wooden and Metal
11 th	1 st	INTERNAL ASSESMENT
	2 nd	5.0 Building Finishes • Floors and Roofs: Types of Floor Finishes and its suitability- Kota, Marble, Granite, Ceramic Tiles, Vitrified, Chequered Tiles, Paver Blocks.
	3 rd	Concrete Floors, wooden Flooring, Skirting and Dado.
12 th	1 st	Process of Laying and Construction, Finishing and Polishing of Floors, Roofing.
	2 nd	Materials- RCC, Mangalore Tiles, AC Sheets, G.I. sheets, Corrugated G.I. Sheets, Plastic and Fibre Sheets.
	3 rd	Types of Roof: Flat roof, Pitched Roof- King Post truss, Queen Post Truss, terms used in roofs.
13 th	1 st	• Wall Finishes: Plastering – Necessity of Plastering,
	2 nd	Procedure of Plastering, Single Coat Plaster, Double Coat Plaster, Rough finish, Neeru Finishing and Plaster of Paris (POP)

	3 rd	Special Plasters- Stucco plaster, sponge finish, pebble finish. Plaster Board and Wall Claddings.
14 TH	1 st	Precautions to be taken in plastering, defects in plastering.
	2 nd	Painting – Necessity, Types of painting and procedure of Painting. Painting – Necessity, Surface Preparation for painting, Methods of Application
	3 rd	REVISION
15 TH	1 st	PREVIOUS YEAR QUESTION AND ANSWER DISCUSSION
	2 nd	PREVIOUS YEAR QUESTION AND ANSWER DISCUSSION
	3 rd	PREVIOUS YEAR QUESTION AND ANSWER DISCUSSION

f. Dhak
30/06/26

LESSON PLAN OF 3RD SEMESTER CIVIL ENGINEERING(2026-27)

Discipline :- CIVIL	Semester:-3 RD	Name of the Teaching Faculty SUBHASHMITA NAIK
Subject:- Geotechnical engineering	No of Days/per Week Class Allotted :-03	Semester From:- <u>1ST JULY 2026</u> To:- <u>5TH NOVEMBER 2026</u> No of Weeks:- 15
Week	Class Day	Theory/ Practical Topics
1 st	1 st	1.0 Overview of Geology and Geotechnical Engineering Introduction of Geology, Branches of Geology, Importance of Geology for civil engineering structure and composition of earth
	2 nd	Definition of a rock: Classification based on their genesis (mode of origin), formation. Classification and engineering uses of igneous, sedimentary and metamorphic rocks. (Concepts only)
	3 rd	Importance of soil as construction material in Civil engineering structures and as foundation bed for structures. (Concepts only)
2 nd	1 st	Field application of geotechnical engineering for foundation design, pavement design, design of earth retaining structures, design of earthen dam. (Concepts only)
	2 nd	2.0 Physical and Index Properties of Soil Soil as a three phase system, water content, determination of water content by oven drying method as per BIS code,
	3 rd	void ratio, porosity and degree of saturation, density index., air Content, Percentage of air voids, Relation between the parameters.
3 rd	1 st	Unit weight of soil mass – bulk unit weight, dry unit weight, unit weight of solids, saturated unit weight, submerged unit weight.
	2 nd	Determination of bulk unit weight and dry unit weight by core cutter and sand replacement method, Determination of specific gravity by pycnometer
	3 rd	Consistency of soil, Atterberg limits of consistency: Liquid limit, plastic limit and shrinkage limit. Plasticity index.
4 th	1 st	Particle size distribution test and plotting of curve, Determination of effective diameter of soil, well graded and uniformly graded soils.
	2 nd	BIS classification of soil.
	3 rd	MONTHLY CLASS TEST -1
5 th	1 st	3.0 Permeability and Seepage Definition of permeability, Darcy's law of permeability.
	2 nd	coefficient of permeability, factors affecting permeability,
	3 rd	determination of coefficient of permeability by constant head and falling head tests,
6 th	1 st	simple problems to determine coefficient of permeability.
	2 nd	Seepage through earthen structures, seepage velocity, seepage pressure, phreatic line, flow lines.
	3 rd	application of flow net, (Concepts only No numerical problems
7 th	1 st	Effective stress, quick Sand condition.
	2 nd	4.0 Compaction, Consolidation and stabilization of soil Concept of compaction, Standard and Modified proctor test as per IS code,

		Plotting of Compaction curve for determining: Optimum moisture content (OMC), maximum dry density (MDD), Zero air voids line.
	3 rd	Factors affecting compaction, field methods of compaction – rolling, ramming and vibration. Consoildation, Difference between compaction and consolidation.
8 th	1 st	Terzaghi's Model analogy of compression/springs showing the process of consolidation, Field implications
	2 nd	• Concept of soil stabilization, necessity of soil stabilization, different methods of soil stabilization.
	3 rd	California bearing ratio (CBR) test - Meaning and Utilization in Pavement Construction.
9 th	1 st	• Necessity of site investigation and soil exploration: Types of exploration, criteria for deciding the location and number of test pits and bores
	2 nd	Field identification of soil – dry
	3 rd	• strength test, dilatancy test and toughness test
10 th	1 st	MONTHLY CLASS TEST -2
	2 nd	5.0 Shear Strength of Soil • Shear failure of soil-General,local and punching shear,
	3 rd	concept of shear strength of soil.
11 th	1 st	• Components of shearing resistance of soil – cohesion, internal friction.
	2 nd	Mohr-Coulomb failure theory, Strength envelope,
	3 rd	strength equation for purely cohesive and cohesion less soils
12 th	1 st	Direct shear, triaxial test.
	2 nd	and vane shear test laboratory methods.
	3 rd	INTERNAL ASSESMENT
13 th	1 st	6.0 Bearing Capacity of Soil and Foundation • Bearing capacity and theory of earth pressure.
	2 nd	Concept of bearing capacity, ultimate bearing capacity, safe bearing capacity and allowable bearing pressure.
	3 rd	Introduction to Terzaghi's analysis and assumptions,
14 th	1 st	effect of water table on bearing capacity.
	2 nd	• Field methods for determination of bearing capacity – Plate load and Standard Penetration Test
	3 rd	Test procedures as per IS:1888 & IS:2131
15 th	1 st	Definition of earth pressure, Active and Passive earth pressure for no surcharge condition. coefficient of earth pressure
	2 nd	Rankine's theory and assumptions made for non- cohesive Soils.
	3 rd	Type of foundations-shallow, deep foundation

S. Arin
30/06/26

LESSON PLAN OF 5th SEMESTER CIVIL ENGINEERING(2026-27)

Discipline :- CIVIL	Semester:- 5 th	Name of the Teaching Faculty SUBHASHMITA NAIK
Subject:- Surveying	No of Days/per Week Class Allotted :-03	Semester From:- 1ST JULY 2026 To:- 5TH NOVEMBER 2026 No of Weeks:- 15
Week	Class Day	Theory/ Practical Topics
1 st	1 st	1.0 Overview and Classification of Survey • Survey- Purpose and Use.
	2 nd	• Types of surveying- Primary and Secondary, Classification: Plane, Geodetic, Cadastral, Hydrographic, Photogrammetry and Aerial.
	3 rd	• Secondary classification, Principles of Surveying.
2 nd	1 st	• Scales: Engineer's scale, Representative Fraction (RF) and diagonal scale.
	2 nd	2.0 Chain Surveying • Instruments used in chain survey: Metric Chain, Tapes, Arrow, Ranging rod, Line ranger, Off-set rod, Open cross staff, Optical square.
	3 rd	• Chain survey Station, Base line, Check line, Tie line, Offset, Tie station. • Ranging: Direct and Indirect Ranging.
3 rd	1 st	• Methods of Chaining, obstacles in chaining.
	2 nd	• Errors in length: Instrumental error, personal error, error due to natural cause, random error.
	3 rd	• Types of offsets: Perpendicular and Oblique. • Conventional Signs, Recording of measurements in a field book.
4 th	1 st	3.0 Compass Traverse Survey • Compass Traversing- open, closed. • Technical Terms: Geographic/ True Magnetic Meridians and Bearings, Whole Circle Bearing system and Reduced Bearing system and examples on conversion of given bearing to another bearing (from one form to another)
	2 nd	• Fore Bearing and Back Bearing, Calculation of internal and external angles from bearings at a station, Dip of Magnetic needle, Magnetic Declination.
	3 rd	MONTHLY CLASS TEST -1
5 th	1 st	• Types of Compass-prismatic and surveyor compass • Components of Prismatic Compass and Surveyor compass and their Functions, , Methods of using Prismatic Compass- Temporary adjustments and observing bearings.
	2 nd	• Local attraction, Methods of correction of observed bearings - Correction at station and correction to included angles.
	3 rd	• Methods of plotting a traverse and closing error, Graphical adjustment of closing error.
6 th	1 st	4.0 Levelling and Contouring • Basic terminologies: Level surfaces, Horizontal and vertical surfaces, Datum, Bench Marks- GTS, Permanent, Arbitrary and Temporary, Reduced Level, Rise, Fall, Line of collimation, Station, Back sight, Fore sight, Intermediate sight, Change point, Height of instruments. • Types of levels: Dumpy, Tilting, Auto level, Digital level, Components of Dumpy Level and its fundamental axes, Temporary adjustments of Level.
	2 nd	• Types of Leveling Staff: Self-reading staff and Target staff. • Reduction of level by Line of collimation and Rise and Fall Method.
	3 rd	• Leveling Types: Simple, Differential, Fly, Profile and Reciprocal Leveling. • Contour, contour intervals, horizontal equivalent.
7 th	1 st	• Uses of contour maps, Characteristics of contours, Methods of Contouring: Direct and indirect. Measurement of Area and Volume • Components and use of Digital planimeter.

	2 nd	• Measurement of area using digital planimeter. • Measurement of volume of reservoir from contour map.
	3 rd	5.0 Theodolite Surveying • Types and uses of Theodolite, Components of transit Theodolite and their functions, Reading the Vernier of transit Theodolite. • Technical terms- Swinging, Transiting, Face left, Face right.
8 th	1 st	• Fundamental axes of transit Theodolite and their relationship • Temporary adjustment of transit Theodolite.
	2 nd	• Measurement of horizontal angle- Direct and Repetition method, Errors eliminated by method of repetition.
	3 rd	• Measurement of magnetic bearing of a line, Prolonging and ranging a line, deflection angle.
9 th	1 st	• Measurement of vertical Angle. • Theodolite traversing by Included angle method and Deflection angle method.
	2 nd	• Checks for open and closed traverse, Calculations of bearing from angles.
	3 rd	• Traverse computation-Latitude, Departure, Consecutive coordinates, Independent coordinates, balancing the traverse by Bowditch's rule and Transit rule, Gale's Traverse table computation. (Simple numerical problems and concept only)
10 th	1 st	MONTHLY CLASS TEST -2
	2 nd	6.0 Tacheometric surveying and Curve setting • Principles of Tacheometry, Anallatic lens. • Tacheometric formula for horizontal distance with telescope horizontal and staff vertical.
	3 rd	• Field method for determining constants of tacheometer, Determining horizontal and vertical distances with tacheometer by fixed hair method and staff held vertical, Limitations of tacheometry.
11 th	1 st	• Types of curves used in roads and railway alignments. Designation of curves.
	2 nd	• Setting simple circular curve by offsets from long chord and Rankine's method of deflection angles.
	3 rd	7.0 Advanced surveying equipment • Principle of Electronic Distance Meter (EDM), its 5 component parts and their Functions, use of EDM. • Use of micro optic Theodolite and Electronic Digital Theodolite.
12 th	1 st	• Use of Total Station, Use of function keys.
	2 nd	• Measurements of Horizontal angles, vertical angles, distances and coordinates using Total Station
	3 rd	INTERNAL ASSESMENT
13 th	1 st	Traversing, Profile Survey and Contouring with Total Station.
	2 nd	8.0 Remote sensing, GPS and GIS • Remote Sensing – Overview, Remote sensing system, Applications of remote sensing in Civil engineering, land use / Land cover, mapping, disaster management.
	3 rd	• Use of Global Positioning System (G.P.S.) instruments, and DGPS
14 th	1 st	• Geographic Information System (GIS): Over view, Components, Applications, Software for GIS
	2 nd	• Introduction to Drone Surveying.
	3 rd	Revision
15 th	1 st	Revision
	2 nd	Previous year question discussion
	3 rd	Previous year question discussion

F. Alkh
30/06/26