

Discipline - Civil Engineering		3rd Semester	Name of the Faculty - BIDHU BHUSAN SABAR
Subject: GEOTECHNICAL ENGINEERING		No of Days per week class alloted(4nos)	Commencement of semester - 1st AUG,2023
Week	Date	Class Days	THEORY
1st	01.08.2023	1st	Soil and Soil Engineering
	04.08.2023	2nd	Scope of Soil Mechanics
	07.08.2023(2p)	3rd/4th	Origin and formation of soil
2nd	08.08.2023	1st	Soil as a three Phase system.
	11.08.2023	2nd	Water Content, Density, Specific gravity, Voids ratio, Porosity,
	14.08.2023(2p)	3rd/4th	Porosity, Percentage of air voids, air content, degree of saturation,
3rd	18.08.2023	1st	ensity Index, Bulk/Saturated/dry/submerged density, Interrelationship of various soil parameters
	21.08.2023(2p)	2nd/3rd	Water Content
	22.08.2023	4th	Specific Gravity
4th	25.08.2023	1st	Particle size distribution: Sieve analysis,
	28.08.2023(2p)	2nd/3rd	wet mechanical analysis, particle size distribution curve and its uses
	29.08.2023	4th	Consistency of Soils, Atterberg's Limits, Plasticity Index, Consistency Index, Liquidity Index
5th	01.09.2023	1st	General
	04.09.2023(2p)	2nd/3rd	I.S. Classification, Plasticity chart
	05.09.2023	4th	Concept of Permeability, Darcy's Law, Co-efficient of Permeability,
6th	08.09.2023	1st	Factors affecting Permeability.
	11.09.2023(2p)	2nd/3rd	Constant head permeability and falling head permeability Test.
	12.09.2023	4th	Seepage pressure,
7th	15.09.2023	1st	effective stress,
	18.09.2023(2p)	2nd/3rd	phenomenon of quick sand
	22.09.2023	4th	Compaction: Compaction, Light and heavy compaction Test,
8th	25.09.2026(2p)	1st/2nd	Optimum Moisture Content of Soil,
	26.09.2027	3rd	Maximum dry density, Zero air void line,
	03.10.2023	4th	Factors affecting Compaction, Field compaction methods and their suitability
9th	06.10.2023	1st	Consolidation: Consolidation,
	09.10.2023(2p)	2nd/3rd	distinction between compaction and consolidation.
	10.10.2023	4th	Terzaghi's model analogy of compression/ springs showing the process of consolidation – field implications
10th	13.10.2023	1st	Concept of shear strength, Mohr- Coulomb failure theory,
	16.10.2023(2p)	2nd/3rd	Cohesion, Angle of internal friction,
	17.10.2023	4th	strength envelope for different type of soil,
11th	20.10.2023	1st	Measurement of shear strength;- Direct shear test,
	27.10.2023	2nd	unconfined compression test and vane-shear test
	30.10.2023(2p)	3rd/4th	Active earth pressure, Passive earth pressure,
12th	31.10.2023	1st	Earth pressure at rest.
	03.11.2023	2nd	Use of Rankine's formula for the following cases (cohesion-less soil only)
	06.11.2024(2p)	3rd/4th	(i) Backfill with no surcharge, (ii) backfill with uniform surcharge
	07.11.2025	1st	Functions of foundations, shallow and deep foundation,

13th	10.11.2026	2nd	different type of shallow
	13.11.2027(2p)	3rd/4th	and deep foundations with sketches.
14th	14.11.2028	1st	Types of failure (General shear, Local shear & punching shear)
	17.11.2029	2nd	Bearing capacity of soil,
	20.11.2030(2p)	3rd/4th	bearing capacity of soils using Terzaghi's formulae & IS Code formulae for strip,
15th	24.11.2031	1st	Circular and square footings,
15th	30.11.2023	2nd	Effect water table on bearing capacity of soil
			, Plate load test and standard penetration test

Discipline - Civil Engineering		5th Semester	Name of the Faculty - BIDHU BHUSAN SABAR
Subject: Water supply and sanitary Engineering		No of Days per week class alloted(5nos)	Commencement of semester - 1st AUG,2023
Week	Date	Class Days	THEORY
			Introduction to Water Supply, Quantity and Quality of water(10)
1st	01.08.2023(2p)		Necessity of treated water supply, Per capita demand,
	02.08.2023		variation in demand and factors affecting demand
	03.08.2023		Methods of forecasting population,
	04.08.2023		Numerical problems using different methods
2nd	08.08.2023(2p)		Impurities in water – organic and inorganic, Harmful effects of impurities
	09.08.2023		Analysis of water –physical,
	10.08.2023		chemical and bacteriological,
			Sources and Conveyance of water(08)
	11.08.2023		Water quality standards for different uses, Surface sources – Lake, stream,
3rd	16.08.2023		river and impounded reservoir, aquifer type & occurrence –
	17.08.2023		Underground sources –Infiltration gallery, infiltration well, springs, well
	18.08.2023		,Yield from well- method s of determination, Numerical problems using yield formulae (deduction excluded)
	22.08.2023(2p)		Intakes – types, description of river intake, reservoir intake, canal intake
4th	23.08.2023		Pumps for conveyance & distribution – types, selection, installation.
	24.08.2023		Pipe materials – necessity, suitability, merits & demerits of each type
			Pipe joints – necessity, types of joints, suitability, methods of jointing Laying of pipes –
			methodTreatment of water(12)
	25.08.2023		Flow diagram of conventional water treatment system
	29.08.2023(2p)		Treatment process / units :Aeration ; Necessity
5th	31.08.2023		Plain Sedimentation : Necessity, working principles,
	01.09.2023		Sedimentation tanks – types, essential features, operation & maintenance
	05.09.2023(2p)		Sedimentation with coagulation: Necessity, principles of coagulation
	07.09.2023		types of coagulants, Flash Mixer, Flocculator, Clarifier (Definition and concept only)
	08.09.2023		Filtration : Necessity, principles
6th	12.09.2023(2p)		types of filters Slow Sand Filter, Rapid Sand Filter and Pressure Filter – essential features
	13.09.2023		Disinfection : Necessity, methods of disinfection
	14.09.2023		Chlorination – free and combined chlorine demand,
	15.09.2023		available chlorine, residual chlorine, pre-chlorination, break point chlorination, super-chlorination
7th	21.09.2023		Softening of water – Necessity, Methods of softening – Lime soda process and Ion exchange method (Concept Only)
			Distribution system And Appurtenance in distribution system:(08)
	22.09.2023		General requirements, types of distribution system-gravity,
	26.09.2023(2p)		direct and combined
	27.09.2023		Methods of supply – intermittent and continuous
	28.09.2023		Distribution system layout – types
	03.10.2023(2p)		Valves-types, features, use, comparison, suitability

8th	04.10.2023		purpose-slucie valves, check valves, air valves, scour valves, Fire hydrants, Water meters
			W/s plumbing in building :(02)
	05.10.2023		Method of connection from water mains to building supply
9th	06.10.2023		General layout of plumbing arrangement for water supply in single storied and multi-storied building as per I.S. code.
			SECTION B: WASTE WATER ENGINEERING
			Introduction(05)
	10.10.2023(2p)		Aims and objectives of sanitary engineering
	11.10.2023		Definition of terms related to sanitary engineering
	12.10.2023		Systems of collection of wastes– Conservancy and Water Carriage System – features, comparison, suitability
			Quantity and Quality of sewage(07)
	13.10.2023		Quantity of sanitary sewage – domestic & industrial sewage
10th	17.10.2023(2p)		variation in sewage flow, numerical problem on computation quantity of sanitary sewage
	18.10.2023		Computation of size of sewer, application of Chazy's formula,
	19.10.2023		Limiting velocities of flow : self-cleaning and scouring,General importance, strength of sewage
	20.10.2023		Characteristics of sewage-physical, chemical & biological
	31.10.2023(2p)		Concept of sewage-sampling, tests for – solids, pH,dissolved oxygen, BOD, COD
			Sewerage system(05)
11th	01.11.2023		Types of system-separate, combined, partially separate , features,
	02.11.2023		comparison between the types, suitability,Shapes of sewer – rectangular,
	03.11.2023		circular, avoid-features, suitability
	07.11.2023(2p)		Laying of sewer-setting out sewer alignment
			Sewer appurtenances and Sewage Disposal(07)
12th	08.11.2023		Manholes and Lamp holes – types, features, location, function
	09.11.2023		Inlets, Grease & oil trap – features, location, function
	10.11.2023		Storm regulator, inverted siphon – features, location, function
	14.11.2023(2p)		Disposal on land – sewage farming, sewage application and dosing,
13th	15.11.2023		sewage sickness-causes and remedies Disposal by dilution – standards for disposal in different types of water bodies, self purification of stream
			Sewage treatment :(08)
	16.11.2023		Principles of treatment, flow diagram of conventional treatment
	17.11.2023		Primary treatment – necessity
	21.11.2024(2p)		principles, essential features, functions
14th	22.11.2025		Secondary treatment – necessity,
	23.11.2026		principles,
	24.11.2027		essential features, functions
			Sanitary plumbing for building :(03)
	28.11.2028(2p)		Requirements of building drainage, layout of lavatory blocks in residential buildings, layout of building drainage
15th	29.11.2029		Plumbing arrangement of single storied & multi storied building as per I.S. code practice
	30.11.2030		Sanitary fixtures – features, function, and maintenance and fixing of the fixtures – water closets, flushing cisterns,
			urinals, inspection chambers, traps, anti syphonage pipe

Discipline- Civil Engineeri ng		5TH Semester	Name of the Faculty-BIDHU BHUSAN SABAR
Subject- DSS		No of Days per week class alloted(4nos)	Commencement date- Sep-01,2023(WINTER)
Week(15)	DATE	CLASS DAYS	TOPIC TO BE COVERED
1ST	02.08.2023	1ST	Common steel structures, Advantages & disadvantages of steel structures
	04.08.2023	2ND	Types of steel, properties of structural steel
	07.08.2023	3D	Rolled steel sections, special considerations in steel design.
	09.08.2023	4TH	Loads and load combinations.
2ND	11.08.2023	1ST	Structural analysis and design philosophy.Brief review of Principles of Limit State design.
	14.08.2023	2ND	Bolted Connections Classification of bolts, advantages and disadvantages of bolted connection
	16.08.2023	3D	Different terminology, spacing and edge distance of bolt holes
	21.08.2023	4TH	Types of bolted connections.
3RD	23.08.2023	1ST	Types of action of fasteners, assumptions and principles of design.
	25.08.2023	2ND	Strength of plates in a joint, strength of bearing type bolts (shear capacity& bearing capacity), reduction factors, and shear capacity of HSFG bolts
	28.08.2023	3D	Analysis & design of Joints using bearing type and HSFG bolts (except eccentric load and prying forces)
	01.09.2023	4TH	Efficiency of a joint. Welded Connections:
4TH	04.09.2023	1ST	Advantages and Disadvantages of welded connection
	08.09.2023	2ND	Types of welded joints and specifications for welding
	11.09.2023	3D	Design stresses in welds. Strength of welded joints.
	13.09.2023	4TH	Common shapes of tension members
5th	15.09.2023	1st	Maximum values of effective slenderness ratio
	18.09.2023	2nd,3rd,4th	Analysis of tension members.(Considering strength only and concept of block shear failure.)
6th	22.09.2023	1st,2nd,3rd,	Design of tension memembr
	25.09.2023	4th,1st,2nd,	Design of tension memembr
7th	27.09.2023	3rd	Common shapes of compression member
	04.10.2023	4th	Buckling class of cross sections
8th	06.10.2023	1st,	slenderness ratio
	09.10.2023	2nd,3rd	Design compressive stress
	11.10.2023	4th,1st	strength of compression members
9th	13.10.2023	2nd,3rd,4th	Analysis and Design of compression members (axial load only).
10th	16.10.2023	1st,2nd,3rd	Common cross sections and their classificatio
	18.10.2023	4th,1st,2nd,	Deflection limits, web buckling and web crippling.
11th	20.10.2023	3rd,4th,1st,2nd	Design of laterally supported beams against bending and shear.
12th	30.10.2023	3rd,4th	Round Tubular Sections, Permissible Stresses
13th	01.11.2023	1st,2nd	Tubular Compression & Tension Members
	03.11.2023	3rd,4th	Joints in Tubular trusses
14th	06.11.2023	1st,2nd	Design considerations for Masonry walls & Columns
	08.11.2023	3rd,4th	Load Bearing & Non-Load Bearing walls
15th	10.11.2023	1st,2nd	Permissible stresses, Slenderness Ratio

15th	30.11.2023	3rd,4th,1st	Effective Length, Height & Thickness.
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