LESSON PLAN

Discipline: CIVIL ENGINEERING	Semester:3rd sem.	Name of the Teaching Faculty: JYOTIRMAYEE SABAR, SR. LECT.
Subject:Building Material & Construction Tecghnology	No. Of Day /per week: 5 class allotted.	Semester From date : 15/09/2022 To Date: 22/12/2022 No of weeks:14 weeks
Week	Class Day	Theory/practical Topics
1st	1st	**STONES** : Classification of rock , uses of stone ,natural bed of stone
	2nd	Qualities of good building stone
	3rd	Dressing of stone
	4th	Characteristics of different types of stone and their uses
	5th	**BRICK**: Brick earth -its composition
2nd	1st	Brick making -preparation of brick earth ,moulding ,drying ,Burning in kilns (Continuous process)
	2nd	Classification of brick , size of traditional and modular bricks ,
	3rd	Qualities of good building bricks
	4th	**CEMENT, MORTAR AND CONCRETE**: Cement: types of cement , properties of cement ,manufacturing of cement
	5th	Importance and application of blended cement with fly ash and blast furnace slag
3rd	1st	Mortar :defination and types of mortar
	2nd	Sources and classification of sand , bukling opf sand
	3rd	Use of gravel , morrum and fly ash as different building material
	4th	Concrete : defination and composition - water cement ratio - workability , mecanical properties
	5th	and grading of aggregate , mixing ,placing , compacting and curing of concrete.
4th	1st	**OTHER CONSTRUCTION MATERIALS** :Timber :classification and structure of timber
	2nd	seasoning of timber- importance
	3rd	Characteristics of goood timber
	4th	Clay product and refractory materials - Defination and classification
	5th	Properties and uses of refractory materials - tiles ,terracotta,porcelain glazing
5th	1st	Iron and steel :use of cast ,wrought iron ,
	2nd	mild steel and tor steel
	3rd	**SURFACE PROTECTIVE MATERIALS**:composition of paints ,enamels ,varnishes.
	4th	types and uses of surface protective materials like paints ,enamels
	5th	types and uses of surface protective materials like varnishes ,distempers ,emulsion
6th	1st	types and uses of surface protective materials like french polish and wax polish.
	2nd	**CONSTRUCTION TECHNOLOGY**: introduction : building and classification of building based on occupancy
	3rd	Different component of building

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	4th	site investigation - objectives, site reconnaissance and explorations.
	5th	**FOUNDATION** : concept of foundation and its purpose
7th	1st	Types of foundation-shallow and deep
	2nd	shallow foundation-constructional details of ; spread foundation for walls, thumd rules for depth and width of foundation and thickness of concrete block
	3rd	Deep foundation :pile foundation -their suitability ,classification of piles based on materials , function and method of installation.
	4th	**WALLS & MASONARY WORKS:**Purpose of walls
	5th	classification of walls -load bearing ,non load bearing walls ,retaining walls
8th	1st	classification of walls as per materials of construction :brick , stone ,reinforced brick ,reinforced concrete , precast ,hollow and solid concrete block and composite masonary walls
	2nd	partition walls :suitability and uses of brick and wooden partition walls
	3rd	brick masonary: Definition of different items
	4th	Bond - meaning and necessity : english bond for 1 and 1-1/2 brick walls ,T, X and right angled corner juctions.Thickness for 1 and 1-1/2 brick square pillars in english bond
	5th	Bond - meaning and necessity : english bond for 1 and 1-1/2 brick walls ,T, X and right angled corner juctions.Thickness for 1 and 1-1/2 brick square pillars in english bond
9th	1st	Stone masonary:Glossary of terms - string course ,corbel ,cornice ,block -in-course ,grouting ,moulding ,templates ,throating, through stones ,parapet ,coping ,pilaster and buttress
	2nd	Stone masonary:Glossary of terms - string course ,corbel ,cornice ,block -in-course ,grouting ,moulding ,templates ,throating, through stones ,parapet ,coping ,pilaster and buttress
	3rd	**DOORS , WINDOWS AND LINTELS** :Glossary of terms used in doors and windows
	4th	doors - different types of doors
	5th	windows - different types of windows
10th	1st	purpose of use of arches and lintels
	2nd	**FLOORS , ROOFS AND STAIRS** :FLOORS:glossary of terms ,types of floors finishes -cast in situ ,concrete flooring ,terrazo tile flooring ,cast in situ terrazzo flooring, timberflooring
	3rd	Roofs :glossary of terms, Types of roofs, concept and function of flat, pitched, hipped and sloped roofs
	4th	Stairs :glossary of terms ;stairs case ,winder ,landing ,stringer ,newel ,baluster,rise ,tread,width of stair case ,hand rails ,nosing ,head room,mumty room
	5th	Stairs :glossary of terms ;stairs case ,winder ,landing ,stringer ,newel ,baluster,rise ,tread,width of stair case ,hand rails ,nosing ,head room,mumty room
11th	1st	various type of stair case - straight flight ,dog legged ,open well ,quater turn ,half turn ,bifurcated stair, spiral stairs ,cantilever stair, tread riser stair.

	2nd	various type of stair case - straight flight ,dog legged ,open well ,quater turn ,half turn ,bifurcated stair, spiral stairs ,cantilever stair, tread riser stair.
	3rd	**PROTECTIVE ,DECORATIVE ,FINISHES ,DAMP AND TERMITE PROOFING**: PLASTERING - purpose - types of plastering ,types of plaster finishes -Grit finishes rough cast ,smooth cast, sand faced, pebble dash ,acoustic plastering and plain plaster etc
	4th	PLASTERING - purpose - types of plastering ,types of plaster finishes - Grit finishes rough cast ,smooth cast, sand faced, pebble dash ,acoustic plastering and plain plaster etc
	5th	Proportion of mortars used for different plasters ,preparation of mortars ,techniquies of plastering curing .
12th	1st	Proportion of mortars used for different plasters ,preparation of mortars ,techniquies of plastering curing .
	2nd	Pointing - purpose -types of ponting
	3rd	Painting - objective -method of painting new and old walls surfaces ,wood surface and metal surfaces - powder coating and spay painting on metal surfaces
	4th	Painting - objective -method of painting new and old walls surfaces ,wood surface and metal surfaces - powder coating and spay painting on metal surfaces
	5th	White washing- colour washing - distempering - internal and external walls
13th	1st	White washing- colour washing - distempering - internal and external walls
	2nd	Damp and termite proofing - materials and methods
	3rd	**GREEN BUILDINGS,ENERGY MANAGEMENT AND ENERGY AUDIT OF BUILDINGS AND PROJECT:** Concept of green building
	4th	Introduction to energy management and energy audit of building
	5th	Aims of energy management of buildings
14th	1st	Types of energy audit, response energy audit questionnaire
	2nd	Energy surveying and audit report.
	3rd	REVISION
	4th	REVISION
	5th	PREVIOUS YEAR QUESTION DISCUSSION

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Discipline:**CIVIL**	Semester: **3RD**	Name of Teaching Faculty:-**TAPAS KUMAR MALLICK**
Subject:-**Estimation & Cost Evaluation -I**	No of Days/Week Class alloted:- **04**	Semester from date:**15.09.2022 to 22.12.2022** No of Weeks: **15**
Week	Claas Day	Theory Topics
1st	1st	**1.Introduction:-**Types ,Concept
	2nd	Units and modes of measurement,Accuracy of work.
	3rd	**2.Quantity Estimate of building**:- Different methods of estimations
	4th	Shortwall longwall method.
2nd	1st	Basics concepts on shortwall & lomgwall methods with basic problems.
	2nd	Numerical problems on single roomed building.
	3rd	Numerical problems on double roomed building.
	4th	Numerical problems building with verndah.
3rd	1st	Deductionns in masnory
	2nd	Deductions in Plastering and paintings.
	3rd	Multiplying factor for painting of dopors & windows
	4th	Detailed estimate of single storied flat roof building.
4th	1st	Foundation details calculations
	2nd	Numerical problems on RCC work
	3rd	Numerical Problems contd.
	4th	Centre line mthod
5th	1st	Numerical problems on single roomed building.
	2nd	Numerical problems on double roomed building.
	3rd	Numerical problems building with verndah.
	4th	Difference between longwall shortwall method & centre line method.
6th	1st	Numerical problems of single storied building with foundation details.
	2nd	Numerical problems of single storied building with foundation details contd.
	3rd	Numerical problems on multi roomed building by shortwall longwall method.
	4th	Contd.Numerical problems on multi roomed building by shortwall longwall method.
7th	1st	Contd.Numerical problems on multi roomed building by shortwall longwall method.
	2nd	Numerical problems on multi roomed building by Centre line method.
	3rd	Contd.Numerical problems on multi roomed building by Centre line method.

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	4th	Contd.Numerical problems on multi roomed building by Centre line method.
8th	1st	Staircase Estimations
	2nd	Mumty room estimate.
	3rd	Numerical problems staircase .
	4th	Numerical problems on mumty room.
9th	1st	**3.Analysis of Rates and Valuation:**-Concept
	2nd	Analysis of rates of Cement concrete
	3rd	Numerical problems-Analysis of rates of Cement concrete
	4th	Analysis of rates of brick masnory in cement mortar.
10th	1st	Numerical problems-Analysis of rates of brick masnory in cement mortar.
	2nd	Analysis of rates of Cement plaster.
	3rd	Numerical problems-Analysis of rates of Cement plaster.
	4th	Analysis of rates of Damp proof course.
11th	1st	Numerical problems-Analysis of rates of Damp proof course.
	2nd	Analysis of rates of white washing & artificial stone flooring.
	3rd	Numerical problems-Analysis of rates of white washing & artificial stone flooring.
	4th	Analysis of rates of Tile flooring & concrete flooring.
12th	1st	Numerical problems-Analysis of rates of Tile flooring & concrete flooring.
	2nd	Analysis of rates of RCC with centering and shuttering.
	3rd	Numerical problems-Analysis of rates of RCC with centering and shuttering.
	4th	Analysis of rates of steel and painting of doors and windows.
13th	1st	Numerical problems-Analysis of rates of steel and painting of doors and windows.
	2nd	Calculation of lead & lift.,royalities of materials as per OPWD.
	3rd	Abstract of cost estimate.
	4th	Vluation,scarp value,salvage value.
14th	1st	Depreciation and obsolesce.
	2nd	Methods of valuation.
	3rd	**4.Administrative set up of Engg. Organisations:-** Set up
	4th	Engineering depts. In state /central/PSUs/Private etc.'
15th	1st	Duties & responsibilities of JEE
	2nd	Duties & responsibilities of SDO,Asst. Executive Engg.
	3rd	Duties & responsibilities of Contractor.
	4th	Summery of Estimation and analysis of rates.

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LESSON PLAN OF 3rd SEMESTER CIVIL ENGINEERING

Discipline :- CIVIL	Semester:- 3	Name of the Teaching Faculty:- SWAYAN RANJAN MISRA
Subject:- Structural Mechanics	No of Days/per Week Class Allotted :- 05	Semester From:- **15.09.2022** To:- **22.12.2022** No of Weeks:- **15**

Week	Class Day	Theory Topics
1st	1st	Review of basic concept of mechanics
	2nd	Principle mechanics force, moment
	3rd	Equilibrium , FBDs
	4th	Centroid: Defination & examples
	5th	Symmetrical, Asymmetrical Section
2nd	1st	Definition of CG & centroid (solid/hollow)
	2nd	Square, rectangular, circular
	3rd	Triangle, semi circle
	4th	Moment of inertia: Definition , MI
	5th	Polar moment of inertia, Radius of gyration
3rd	1st	Section modulus, Polar modulus
	2nd	Parallel axis theorems, MI of various shape
	3rd	MI of various symmetrical and Asymmetrical section
	4th	Simple stress and strain
	5th	Behavior and property of steel under tension
4th	1st	Elasticity, Plasticity, Compressibility, Hardness
	2nd	Toughness, Malleability, Ductility
	3rd	Creep, Fatigue, Poof stress
	4th	Resilience, Modulus of Resilience
	5th	Longitudinal and Lateral strain
5th	1st	Stress, Strain and poison's ratio
	2nd	Hook's law, Elastic constant, Young's modulus
	3rd	Bulk's modulus, Rigidity modulus
	4th	Relation between Elastic constants
	5th	-do-
6th	1st	Application of stress and strain
	2nd	Mild steel tensile curve and different limit on that curve
	3rd	Deformation of prismatic bar, Tapered bar
	4th	Volumetric strain
	5th	Elongation due to thermal stress
7th	1st	Complex stress and strain: Normal stress and shear stress
	2nd	Principal stresses, Principal plane, major and minor principal stress
	3rd	Concept of mohr's circle
	4th	Drawing of mohr's circle
	5th	Application of mohr's circle in solving problem
8th	1st	Bending stress in beam, Assumptions, Equation of Flexure
	2nd	Flexural stress distribution, Neutral axis, Flexural rigidity, section modulus
	3rd	shear stress in the beam, distribution of shear stress of different cross section

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	4th	Torsional stress in the beam
	5th	Combined stress due to moment and torque
9th	1st	Column and strut: Definition, long and short column
	2nd	End condition , Equivalent length, slenderness ratio
	3rd	Axially loaded short and long column
	4th	Euler's theory of long column
	5th	Critical load for different end condition
10th	1st	Different types of load in structure
	2nd	Different types of support condition
	3rd	Reaction forces and reaction moment
	4th	Static Equilibrium equation
	5th	Calculation of various reaction forces
11th	1st	Shear force and Bending moment Definition
	2nd	Sign convention
	3rd	Shear force diagram of determinate structure
	4th	SFD for point loading on simple supported, cantilever beam
	5th	SFD for UDL on simple supported, cantilever beam
12th	1st	BMD for point loading on simple supported, cantilever beam
	2nd	BMD for UDL on simple supported, cantilever beam
	3rd	Maximum BM and SF, point of contra flexure
	4th	Problem solving
	5th	-do-
13th	1st	Slope and Deflection: introduction
	2nd	Importance of slope deflection
	3rd	Slope deflection by double integration method
	4th	Slope deflection by Macaulay's method
	5th	Slope deflection of SS & cantilever beam
14th	1st	Indeterminate beam: Introduction
	2nd	Degree of indeterminacy
	3rd	Concept of compatibility equation
	4th	Analysis of propped cantilever , fixed and continuous beam
	5th	BMD and SFD
15th	1st	Trusses: Introduction
	2nd	Statically determinate and indeterminate structure
	3rd	Degree of indeterminacy
	4th	Stable and unstable truss
	5th	Advantages of trusses
16th	1st	**DOUBT CLEARING CLASS AND REVISION & PREVIOUS FIVE YEARS QUESTION ANSWER DISCUSSION**
	2nd	
	3rd	
	4th	
	5th	

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LESSON PLAN OF 3rd SEMESTER CIVIL ENGINEERING

Discipline :- CIVIL	Semester: 3rd	Name of the Teaching Faculty:- **Tapas Ranjan Mishra**
Subject:- Geotechnical Engg.	No of Days/per Week Class Allotted :- 04	Semester From:- **15.09.2022 to 22.12.2022** No of Weeks:- **15**

Week	Class Day	Theory Topics
1st	1st	**Introduction** Soil and Soil Engineering Scope of Soil Mechanics
	2nd	Origin and formation of soil
	3rd	**Preliminary Definitions and Relationship** Soil as a three Phase system
	4th	Water Content, Density, Specific gravity, Voids ratio, Porosity
2nd	1st	Percentage of air voids, air content, degree of saturation, density Index
	2nd	Bulk/Saturated/dry/submerged density, Interrelationship of various soil parameters
	3rd	Numerical Problem
	4th	Numerical Problem
3rd	1st	**Index Properties of Soil** Water Content
	2nd	Specific Gravity
	3rd	Particle size distribution: Sieve analysis, wet mechanical analysis, particle size distribution curve and its uses
	4th	Consistency of Soils, Atterberg's Limits, Plasticity Index, Consistency Index, Liquidity Index
4th	1st	**Classification of Soil** General Classification
	2nd	I.S. Classification,
	3rd	I.S. Classification,
	4th	Example and Numerical Problem
5th	1st	Plasticity chart
	2nd	Example and Numerical Problem

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	3rd	**Permeability and Seepage** Concept of Permeability
	4th	Darcy's Law, Co-efficient of Permeability
6th	1st	Factors affecting Permeability
	2nd	Constant head permeability and falling head permeability Test
	3rd	Seepage pressure, effective stress
	4th	phenomenon of quick sand
7th	1st	Numerical Problem
	2nd	**Compaction and Consolidation** Compaction, Light and heavy compaction Test, Optimum Moisture Content
	3rd	Optimum Moisture Content
	4th	
8th	1st	Maximum dry density, Zero air void line, Factors affecting Compaction,
	2nd	Field compaction methods and their suitability
	3rd	Consolidation
	4th	Distinction between compaction and consolidation.
9th	1st	Terzaghi's model analogy of compression/ springs showing the process of consolidation – field implications
	2nd	Terzaghi's model analogy of compression/ springs showing the process of consolidation – field implications
	3rd	**Shear Strength** Concept of shear strength, Mohr- Coulomb failure theory
	4th	Cohesion, Angle of internal friction
10th	1st	strength envelope for different type of soil
	2nd	Measurement of shear strength;- Direct shear test,
	3rd	Triaxial shear Test
	4th	unconfined compression test and vane-shear test
11th	1st	**Earth Pressure on Retaining Structures** Active earth pressure
	2nd	Passive earth pressure
	3rd	Earth pressure at rest.

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	4th	Use of Rankine's formula for the (cohesion-less soil) Backfill with no surcharge,
12th	1st	Use of Rankine's formula for the (cohesion-less soil) Backfill with no surcharge,
	2nd	Use of Rankine's formula for the (cohesion-less soil) backfill with uniform
	3rd	Use of Rankine's formula for the (cohesion-less soil) backfill with uniform
	4th	Numerical Problem
13th	1st	Foundation Engineering Functions of foundations
	2nd	shallow and deep foundation
	3rd	different type of shallow with sketches
	4th	different type of shallow foundations with sketches
14th	1st	different type deep foundations with sketches
	2nd	different type deep foundations with sketches
	3rd	Types of failure General shear, Local shear & punching shear
	4th	Bearing capacity of soil
15th	1st	bearing capacity of soils using Terzaghi's formulae
	2nd	IS Code formulae for strip, Circular and square footings
	3rd	Effect water table on bearing capacity of soil
	4th	Plate load test and standard penetration test

Signature of the concerned Lecturer

Signature of the H.O.D

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LESSON PLAN

DISCIPLINE	SEMESTER 3rd Sem.	Name of the Teaching Faculty: Tapas Ranjan Mishra
Sub: EVS Th.5	No. of Days Per Week: 4 Class Allotted	Semester From Date: 15.09.2022 To Date:22.12.2022 No. of Weeks: 15 Weeks
Week	Class Day	Theory/Practical Topic
1st	1	Definition, scope and importance, Need for public awareness.
	2	Natural resources and associated problems.
	3	Forest resources: Use and over-exploitation, deforestation, case studies, Timber extraction mining, dams and their effects on forests and tribal people.
	4	Forest resources: Use and over-exploitation, deforestation, case studies, Timber extraction mining, dams and their effects on forests and tribal people.
2nd	1	Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dam's benefits and problems.
	2	Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dam's benefits and problems.
	3	Mineral Resources: Use and exploitation, environmental effects of extracting and using mineral resources.
	4	Mineral Resources: Use and exploitation, environmental effects of extracting and using mineral resources.
3rd	1	Food Resources: World food problems, changes caused by agriculture and over grazing, effects of modern agriculture, fertilizers- pesticides problems, water logging, salinity,
	2	Food Resources: World food problems, changes caused by agriculture and over grazing, effects of modern agriculture, fertilizers- pesticides problems, water logging, salinity,
	3	Energy Resources: Growing energy need, renewable and non-renewable energy sources, use of alternate energy sources, case studies.
	4	Land Resources: Land as a resource, land degradation, man induces landslides, soil erosion, and desertification.
4th	1	Land Resources: Land as a resource, land degradation, man induces landslides, soil erosion, and desertification.
	2	Role of individual in conservation of natural resources.
	3	Equitable use of resources for sustainable life styles.
	4	Concept of an eco system.
5th	1	Structure and function of an eco system.
	2	Producers, consumers, decomposers.
	3	Energy flow in the eco systems.
	4	Ecological succession.
6th	1	Food chains, food webs and ecological pyramids.
	2	Introduction, types, characteristic features, structure and function of the following eco system:
	3	Forest ecosystem:
	4	Aquatic eco systems (ponds, streams, lakes, rivers, oceans, estuaries).
7th	1	Introduction-Definition: genetics, species and ecosystem diversity.
	2	Biogeographically classification of India.
	3	Value of biodiversity: consumptive use, productive use, social ethical, aesthetic and optin values.
	4	Value of biodiversity: consumptive use, productive use, social ethical, aesthetic and optin values.
8th	1	Biodiversity at global, national and local level.
	2	Threats to biodiversity: Habitats loss, poaching of wild life, man wildlife conflicts.
	3	Threats to biodiversity: Habitats loss, poaching of wild life, man wildlife conflicts.
	4	Air pollution
9th	1	Air pollution
	2	Water pollution
	3	Water pollution

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	4	Soil pollution
10th	1	Soil pollution
	2	Marine pollution
	3	Noise pollution
	4	Thermal pollution
11th	1	Nuclear hazards
	2	Solid waste Management: Causes, effects and control measures of urban and industrial wastes.
	3	Role of an individual in prevention of pollution.
	4	Disaster management: Floods, earth quake, cyclone and landslides.
12th	1	Form unsustainable to sustainable development.
	2	Urban problems related to energy.
	3	Water conservation, rain water harvesting, water shed management.
	4	Resettlement and rehabilitation of people; its problems and concern.
13th	1	Environmental ethics: issue and possible solutions
	2	Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, case studies.
	3	Air (prevention and control of pollution) Act.
	4	Water (prevention and control of pollution) Act.
14th	1	Public awareness.
	2	Population growth and variation among nations
	3	Population explosion- family welfare program
	4	Environment and human health
15th	1	Human rights.
	2	Value education
	3	Role of information technology in environment and human health.
	4	Role of information technology in environment and human health.

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