LESSON PLAN OF 3RD SEMESTER CIVIL ENGINEERING(2023-24)			
Discipline: **CE**	Semester: 3rd/3rd	Name of the Teaching Faculty Swastik Pradhan	
Subject: **Structural mechanics**	No. of Days/per week class allotted: 05	Semester From Date: **01/08/2023** To Date: **30/11/2023** No. of Weeks : **18**	
Week	**Class Day**	**Theory Topics**	Update/comment
1st	01	Review Of Basic Concepts	
	02	Force, Moment, support conditions, Conditions of equilibrium, C.G & MI, Free body diagram	
	03	Review of CG and MI of different sections	
	04	Simple And Complex Stress, Strain	
	05	Introduction to stresses and strains	
2nd	01	Plasticity, Compressibility, Hardness, Toughness, Stiffness, Brittleness, Ductility, Malleability, Creep, Fatigue, Tenacity, Durability	
	02	Longitudinal and Lateral strains, Poisson's Ratio, Volumetric strain, computation of stress, strain, Poisson's ratio,	
	03	Hooke's law - Elastic Constants, Derivation of relationship between the elastic constants.	
	04	Application of simple stress and strain in engineering field Behaviour of ductile and brittle materials under direct loads	
	05	Stress Strain curve of a ductile material	
3rd	01	Limit of proportionality, Elastic limit, Yield stress, Ultimate stress, Breaking stress, Percentage elongation, Percentage reduction in area	
	02	Deformation of prismatic bars due to uniaxial load, Deformation of prismatic bars due to its self weight	
	03	Complex stress and strain introduction	
	04	Principal stresses and strains: Occurrence of normal and tangential stresses,	
	05	Concept of Principal stress and Principal Planes, major and minor principal stresses	
4th	01	Mohr's Circle and its application to solve problems of complex stresses	
	02	Stresses In Beams and Shafts	

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		introduction	
	03	Bending stress in beams – Theory of simple bending	
	04	Equation for Flexure– Flexural stress distribution – Curvature of beam	
	05	Position of N.A. and Centroidal Axis – Flexural rigidity – Significance of Section modulus	
5th	01	Shear stresses in beams	
	02	Shear stress distribution in beams of rectangular, circular and standard sections symmetrical about vertical axis.	
	03	Stresses in shafts due to torsion	
	04	Concept of torsion, basic assumptions of pure torsion,	
	05	torsion of solid and hollow circular sections, polar moment of inertia	
6th	01	Torsional shearing stresses, angle of twist, Torsional rigidity, equation of torsion	
	02	Combined bending and direct stresses:	
	03	Combination of stresses, Combined direct and bending stresses	
	04	Maximum and Minimum stresses in Sections	
	05	Conditions for no tension	
7th	01	Limit of eccentricity, Middle third/fourth rule, Core or Kern for square, rectangular and circular sections	
	02	chimneys, dams and retaining walls	
	03	Columns and Struts introduction	
	04	Definition, Short and Long columns, End conditions, Equivalent length / Effective length, Slenderness ratio,	
	05	Axially loaded short and long column, Euler's theory of long columns, Critical load for Columns with different end conditions	
8th	01	Shear Force and Bending Moment introduction	
	02	Types of Loads: Concentrated (or) Point load, Uniformly Distributed load (UDL)	
	03	Types of Supports: Simple support, Roller support, Hinged support, Fixed support	
	04	Types of Reactions: Vertical reaction, Horizontal reaction, Moment reaction,	
	05	Types of Beams based on support conditions: Calculation of support reactions using equations of static	

		equilibrium	
9th	01	Shear Force and Bending Moment	
	02	S.F and B.M diagrams for Cantilevers	
	03	Practice problem	
	04	Practice problem	
	05	S.F and B.M diagrams for Simply supported beams	
10th	01	Practice problem	
	02	S.F and B.M diagrams for overhanging beam	
	03	practice problem	
	04	Position of maximum BM, Point of contra flexure	
	05	Relation between intensity of load, S.F and B.M.	
11th	01	Slope and Deflection	
	02	Shape and nature of elastic curve deflection curve	
	03	Relationship between slope, deflection and curvature	
	04	Importance of slope and deflection	
	05	Slope and deflection of cantilever for point load by Double Integration method	
12th	01	Slope and deflection of cantilever for udl by Double Integration method	
	02	Slope and deflection of simply supported beam for point load	
	03	Slope and deflection of simply supported beam for udl	
	04	Macaulay method	
	05	Practice problem	
13th	01	Indeterminate Beams	
	02	Indeterminacy in beams,	
	03	Principle of consistent deformation and compatibility	
	04	Analysis of propped cantilever with SF and BM diagrams	
	05	Analysis of fixed beam with SF and BM diagram	
14th	01	Analysis of two span continuous beam with SF and BM	
	02	Trusses: Introduction	
	03	Types of trusses	
	04	statically determinate and indeterminate	

		trusses	
	05	Degree of indeterminacy	
15th	01	stable and unstable trusses	
	02	Advantages of trusses.	
	03	Numerical problem solving	
	04	Numerical problem solving	
	05	Previous year questions solving	
16th	01	Numerical problem solving	
	02	Numerical problem solving	
	03	Previous year questions solving	
	04	Previous year questions solving	
	05	Numerical problem solving	
17th	01	Numerical problem solving	
	02	Numerical problem solving	
	03	Previous year questions solving	
	04	Previous year questions solving	
	05	Numerical problem solving	
18th	01	DOUBT CLEARING CLASS	
	02	DOUBT CLEARING CLASS	
	03	DOUBT CLEARING CLASS	
	04	DOUBT CLEARING CLASS	
	05	Numerical problem solving	

LESSON PLAN OF 3RD SEMESTERCIVIL ENGINEERING(2023-24)

Discipline :- CIVIL	Semester:-3RD	Name of the Teaching Faculty SOUMYAKANTA SAHOO
Subject:- Geotechnical engineering	No of Days/per Week Class Allotted :-04	Semester From:-**1st August,2023** To:- **30th November,2023** No of Weeks:- **18**

Week	Class Day	Theory/ Practical Topics
1st	1st	Introduction Soil and Soil Engineering. Scope of Soil Mechanics
	2nd	Preliminary definitions and relationship. Soil as a three Phase system.
	3rd	Weight volume relationships: Water Content ,Density
	4th	Specific gravity,Voids ratio, Porosity,
2nd	1st	Degree of saturation ,Percentage of air voids, air content,
	2nd	Density Index, Bulk/Saturated/dry/submerged density.
	3rd	Water Content (Pycnometer method, Oven drying method)
	4th	Specific Gravity
3rd	1st	Particle size distribution, Sieve analysis, Wet mechanical analysis- Pipette method, Basic concept of Hydrometer Analysis
	2nd	Consistency of Soils, Atterberg's Limits, Plasticity Index, Consistency Index, Liquidity Index
	3rd	Classification of soil.
	4th	Particle size Distribution.
4th	1st	Textural Classification.
	2nd	HRB Classification.
	3rd	Unified Soil Classifications
	4th	I.S. Classification.
5th	1st	Concept of Permeability, Darcy's Law
	2nd	Co-efficient of Permeability,
	3rd	Factors affecting Permeability
	4th	Constant head permeability and
6th	1st	Falling head permeability Test
	2nd	Seepage pressure, the phenomenon of quick sand
	3rd	Concept of flow-net, Properties and application of flow-net.
	4th	Compaction, Light and heavy compaction Test
7th	1st	Optimum Moisture Content of Soil, Maximum dry density, Zero air void line
	2nd	Factors affecting Compaction
	3rd	Field compaction methods and their suitability
	4th	Consolidation, distinction between compaction and consolidation
8th	1st	Spring Analogy method, Pressure-void ratio curve, normally consolidated
	2nd	Under consolidated and over consolidated soil, Assumption of Terzaghi's theory of one-dimensional consolidation, Laboratory Consolidation Test
	3rd	Co-efficient of Consolidation, Time Factor, Estimation of consolidation settlement, Difference between primary and secondary consolidation
	4th	Concept of shear strength
9th	1st	Mohr- Coulomb failure theory,
	2nd	Cohesion, Angle of internal friction

	3rd	Strength envelope for different type of soil
	4th	Measurement of shear strength:- Direct shear test,
10th	1st	Triaxial shear test, unconfined compression test and vane-shear test
	2nd	EARTH PRESSURE ON RETAINING STRUCTURES
	3rd	Active earth pressure
	4th	Passive earth pressure,
11th	1st	Earth pressure at rest.
	2nd	Use of Rankin's formula for the following cases (cohesion-less soil only)
	3rd	(i) Backfill with no surcharge,
	4th	(ii) Backfill with uniform surcharge.
12th	1st	(iii) submergedbackfill
	2nd	FOUNDATION ENGINEERING, Functions of foundations,
	3rd	Shallow and deep foundation,
	4th	Different type of shallow and deep foundations with sketches.
13th	1st	Types of failure (General shear, Local shear & punching shear)
	2nd	9.2 Bearing capacity of soil, bearing capacity of soils using Terzaghi's formulae & IS Code formulae for strip, Circular and square footings
	3rd	Machine Foundation: Introduction to Soil dynamics, Terms associated with soil dynamics
	4th	Free vibration and Forced vibration, Natural frequency, Types of
14th	1st	Machines and machine foundation, General requirements, Design of machine
	2nd	Foundations: Reciprocating type , Centrifugal type, Impact type,
	3rd	Isolation of foundations.
	4th	PREVIOUS YEAR QUESTION DISCUSSION
15th	1st	PREVIOUS YEAR QUESTION DISCUSSION
	2nd	PREVIOUS YEAR QUESTION DISCUSSION
	3rd	PREVIOUS YEAR QUESTION DISCUSSION
	4th	PREVIOUS YEAR QUESTION DISCUSSION
16th	1st	Numerical problem solving
	2nd	Numerical problem solving
	3rd	Numerical problem solving
	4th	Previous year questions solving
17th	1st	Previous year questions solving
	2nd	Numerical problem solving
	3rd	Numerical problem solving
	4th	Numerical problem solving
18th	1st	REVISION
	2nd	REVISION
	3rd	REVISION
	4th	REVISION

LESSON PLAN OF 3rd SEMESTERCIVIL ENGINEERING(2023-24)

Discipline :- CIVIL	Semester:-3rd	Name of the Teaching Faculty AMARAPALLI SAHOO Senior Lecturer (civil)
Subject:- Building materials and construction technology.	No of Days/per Week Class Allotted :-05	Semester From:- **1st AUGUST,2023** To:- **30th NOVEMBER, 2023** No of Weeks:- **18**

Week	Class Day	Theory/ Practical Topics
1st	1st	Classification of rock.
	2nd	Uses of stone, natural bed of stone
	3rd	Qualities of good building stone
	4th	Dressing of stone
	5th	Characteristics of different types of stone and their uses
2nd	1st	Brick earth-its composition
	2nd	Brick making- preparation of brick earth
	3rd	Moulding, Drying
	4th	Burning in kilns (Continuous process)
	5th	Classification of bricks, size of traditional and modular bricks.
3rd	1st	Qualities of good building bricks
	2nd	Cement types of cement, properties of cements, manufacturing of cement.
	3rd	Importance and application of blended cement with fly ash and blast furnace slag
	4th	Mortar : Definition and types of mortar
	5th	Sources and classification of sand, bulking of sand.
4th	1st	Use of gravel, morrum and fly ash as different building material.
	2nd	Concrete: Definition and composition –Water cement ratio- workability, Mechanical properties.
	3rd	Grading of aggregates, mixing, placing, compacting and curing of concrete
	4th	Timber classification and structure of timber
	5th	seasoning of timber- Importance
5th	1st	Characteristics of good timber
	2nd	Clay products and refractory materials- Definition and classification.
	3rd	Properties and uses of refractory materials like-tiles, terracotta
	4th	Porcelain glazing , Iron and steel uses of cast iron.
	5th	Wrought iron, mild steel and tor steel
	6th	Tutorial class
6th	1st	Composition of paints, enamels
	2nd	Composition of varnishes
	3rd	Types and uses of surface protective materials like paints
	4th	Enamels, Varnishes, Distempers
	5th	Emulsion, French polish and Wax polish Tutorial class.
7th	1st	Building and classification of buildings based on occupancy, different components of buildings site
	2nd	Investigation objective, Site reconnaissance and explorations
	3rd	Concept of foundation and its purpose

	4th	Types of foundation – shallow and deep, shallow foundation - constructional details of Spread foundation of walls.
	5th	Thump rules for depth and width of foundation and thickness of concrete block.
8th	1st	Deep foundations : Pile foundation their suitability, classification of piles based on materials, function and method of installation
	2nd	Purpose of walls, Classification of walls load bearing, non-load bearing walls, retaining walls
	3rd	Classification of walls as per materials of construction : brick stone, reinforced brick , reinforced concrete, pre cast, hollow and solid concrete block and composite masonry walls
	4th	Partition walls suitability and uses of brick and wooden partition walls, brick masonry, Definition of different terms
	5th	Bond- meaning and necessity; English bond for I and I -1/2 brick thick walls
9th	1st	Stone Masonry string course, corbel, Cornices block in course
	2nd	Grouting, mouldings, templates, throating through stones, parapet, coping, pilaster and buttress
	3rd	Glossary of terms used in doors and windows doors- different types of doors
	4th	Doors- different types of doors
	5th	Windows – different types of windows
10th	1st	Purpose of use of arches and lintels
	2nd	Floors, types of floor finishes-cast – situ, concrete flooring, terrazzo tile flooring cast in situ terrazzo flooring, timber flooring.
	3rd	Roots types concept and function of flat pitched and slopped roofs
	4th	stair case, landing, winder, stringer, newel, baluster, rise, tread , width
	5th	Hand rail, noising, head room, mumty room, various types of stair case – straight flight, dog legged open well
11th	1st	Quarter turn, half turn, bifurcated stair, spiral stair, cantilever stair, tread riser stair
	2nd	Plastering – purpose- types of plastering types of plaster finishes.
	3rd	Proportions of mortar of plaster, pre parathion techniques and curing.
	4th	Painting purpose types, paining- method of paining new and old surface
	5th	White washing –colour washing- distempering internal and external walls
12th	1st	Damp and termite proofing – materials and method
	2nd	Concept of green building, introduction to energy management and audit of building
	3rd	Aims of energy management of buildings
	4th	Types of energy audit, response energy audit questionnaire
	5th	Energy Surveying and audit report
13TH	1st	PREVIOUS YEAR QUESTIONS PRACTICE
	2nd	PREVIOUS YEAR QUESTIONS PRACTICE
	3rd	PREVIOUS YEAR QUESTIONS PRACTICE
	4th	PREVIOUS YEAR QUESTIONS PRACTICE
	5th	DOUBT CLEARING CLASS

14th	1st	PREVIOUS YEAR QUESTIONS PRACTICE
	2nd	PREVIOUS YEAR QUESTIONS PRACTICE
	3rd	PREVIOUS YEAR QUESTIONS PRACTICE
	4th	PREVIOUS YEAR QUESTIONS PRACTICE
	5th	DOUBT CLEARING CLASS
15th	1st	PREVIOUS YEAR QUESTIONS PRACTICE
	2nd	PREVIOUS YEAR QUESTIONS PRACTICE
	3rd	PREVIOUS YEAR QUESTIONS PRACTICE
	4th	PREVIOUS YEAR QUESTIONS PRACTICE
	5th	DOUBT CLEARING CLASS
16th	1st	DOUBT CLEARING CLASS
	2nd	DOUBT CLEARING CLASS
	3rd	DOUBT CLEARING CLASS
	4th	DOUBT CLEARING CLASS
	5th	DOUBT CLEARING CLASS
17th	1st	DOUBT CLEARING CLASS
	2nd	DOUBT CLEARING CLASS
	3rd	DOUBT CLEARING CLASS
	4th	DOUBT CLEARING CLASS
	5th	DOUBT CLEARING CLASS
18th	1st	DOUBT CLEARING CLASS
	2nd	DOUBT CLEARING CLASS
	3rd	DOUBT CLEARING CLASS
	4th	DOUBT CLEARING CLASS
	5th	DOUBT CLEARING CLASS

LESSON PLAN OF 3RD SEMESTERCIVIL ENGINEERING (2023-24)

Discipline :- CIVIL	Semester:-3RD	Name of the Teaching Faculty SANDIP SAMANTARAY
Subject:- Estimating and cost evaluation-I	No of Days/per Week Class Allotted :-04	Semester From:- **1st August,2023** To:- **30th November, 2023** No of Weeks:- **18**
Week	**Class Day**	**Theory/ Practical Topics**
1st	1st	Introduction Types of estimates – Plinth area, floor area / carpet area
	2nd	Units and modes of measurements as per IS 1200 Accuracy of measurement for different item of work
	3rd	Quantity estimate of building Short wall long wall method and centre line method
	4th	Problems
2nd	1st	Deductions in masonry,
	2nd	Problems
	3rd	Plastering,
	4th	Problems
3rd	1st	white washing,
	2nd	Problems
	3rd	painting etc., multiplying factor
	4th	Problems
4th	1st	Painting
	2nd	Painting of doors and windows (paneled/glazed), grills etc. as per OPWD scheduled of rates.
	3rd	Problems
	4th	Problems
5th	1st	Problems
	2nd	Problems
	3rd	Detailed estimate of single storied flat roof building with shallow foundation and
	4th	Problems
6th	1st	Problems
	2nd	RCC roof slab with leak proof treatment over it including
	3rd	Problems
	4th	Problems
7th	1st	Detailed estimate of a simple inclined roof building with gabled / hipped roof
	2nd	Problems
	3rd	Problems
	4th	A.C. sheet / G.C.I. sheet roofing.
8th	1st	Problems
	2nd	Problems
	3rd	Problems
	4th	Analysis of rates as per opwd specifications / standards Analysis of rates for cement concrete
9th	1st	Problems
	2nd	Problems
	3rd	Problems
	4th	brick masonry in Cement Mortar
10th	1st	Problems

Sandip Samantaray

	2nd	Laterite stone masonry in Cement Mortar ,
	3rd	Problems
	4th	Problems
11th	1st	cement plaster
	2nd	Problems
	3rd	white washing ,Artificial Stone flooring,
	4th	Problems
12th	1st	concrete flooring,
	2nd	Problems
	3rd	R.C.C. with centering and shuttering, reinforcing steel,
	4th	Problems
13th	1st	Painting of doors and windows etc
	2nd	Problems
	3rd	Calculation of lead, lift, conveyance charges, royalty of materials, etc. as per Orissa P.W.D. system
	4th	Abstract of cost of estimate.
14th	1st	Administrative set-up of engineering organisations
	2nd	Administrative set-up and hierarchy of Engineering Deptt. Duties of responsibilities of Engineers at different positions /levels
	3rd	Doubt clearing classes
	4th	PREVIOUS YEAR QUESTION DISCUSSION
15th	1st	PREVIOUS YEAR QUESTION DISCUSSION
	2nd	PREVIOUS YEAR QUESTION DISCUSSION
	3rd	PREVIOUS YEAR QUESTION DISCUSSION
	4th	PREVIOUS YEAR QUESTION DISCUSSION
16th	1st	PREVIOUS YEAR QUESTION DISCUSSION
	2nd	PREVIOUS YEAR QUESTION DISCUSSION
	3rd	PREVIOUS YEAR QUESTION DISCUSSION
	4th	PREVIOUS YEAR QUESTION DISCUSSION
17th	1st	REVISION
	2nd	REVISION
	3rd	REVISION
	4th	REVISION
18th	1st	REVISION
	2nd	REVISION
	3rd	REVISION
	4th	REVISION

Discipline :- **CIVIL ENGG.**	Semester:- **3rd**	Name of the Teaching Faculty:- KIRAN NAIK
Subject:- **ENVIRONMENTAL STUDIES**	No of Days/per Week Class Allotted :- **5**	Semester From:- **1st August,2023** To:- **30th November,2023** No of Weeks:- **18**

Week	Class Day	Theory/ Practical Topics
1st	1st	Definition, scope of Environmental studies
	2nd	Multidisciplinary nature of environment
	3rd	Importance
	4th	Need for public awareness
	5th	Renewable and Non-renewable resources
2nd	1	Natural resources and associated problems : Forest resources: Use and over-exploitation, deforestation, case studies,
	2nd	Timber extraction mining, dams and their effects on forests and tribal people.
	3rd	Water resources: Use and over-utilization of surface and ground water,
	4th	floods, drought, conflicts over water, dam's benefits and problems.
	5th	Mineral Resources: Use and exploitation, environmental effects of extracting and using mineral resources.
3rd	1th	Food Resources: World food problems, changes caused by agriculture and over grazing,
	2nd	Effects of modern agriculture, fertilizers- pesticides problems, water logging, salinity,
	3rd	Energy Resources: Growing energy need, renewable and non-renewable energy sources, use of alternate energy sources, case studies.
	4th	Land Resources: Land as a resource, land degradation, man induces land slides, soil erosion, and desertification.
	5th	a) Role of individual in conservation of natural resources.
4th	1st	b) Equitable use of resources for sustainable life styles.
	2nd	Concept of an eco system.
	3rd	Structure and function of an eco system
	4th	Producers, consumers, decomposers
	5th	Energy flow in the eco systems
5th	1st	Ecological succession
	2nd	Food chains
	3rd	food webs
	4th	ecological pyramids
6th	1st	Introduction, types, characteristic features of the following eco system
	2nd	structure and function of the following eco system
	3rd	Forest ecosystem

Kiran Naik (Kiran)
Lect. in Physics

	4th	Aquatic eco systems (ponds, streams, lakes, rivers, oceans, estuaries).
7th	1st	Introduction-Definition: genetics, species and ecosystem diversity.
	2nd	Biogeographically classification of India
	3rd	Value of biodiversity: consumptive use
	4th	Productive use, social ethical
	5th	Aesthetic and option values
8th	1st	Biodiversity at global, national and local level.
	2nd	Threats to biodiversity: Habitats loss,
	3rd	Poaching of wild life, man wildlife conflicts.
	4th	Definition Causes of Environmental Pollution
	5th	Effects of Environmental Pollution
9th	1st	control measures of Environmental Pollution
	2nd	a) Air pollution.
	3rd	b) Water pollution. c) Soil pollution
10th	1st	a) Marine pollution b) Noise pollution.
	2nd	a) Thermal pollution b) Nuclear hazards.
	3rd	Solid waste Management Causes
	4th	Solid waste Management effects
11th	1st	Solid waste Management control measures of urban wastes Solid waste Management control measures of industrial wastes
	2nd	Role of an individual in prevention of pollution Pollution case studies
	3rd	Disaster management: Floods, earth quake Disaster management : cyclone and landslides
	4th	Disaster management: Floods, earth quake
	5th	Form unsustainable to sustainable development.
12th	1st	Urban problems related to energy. Water conservation, rain water harvesting water shed management
	2nd	Resettlement and rehabilitation of people; its problems and concern Environmental ethics: issue and possible solutions
	3rd	Climate change, global warming Nuclear accidents and holocaust, case studies Nuclear accidents and holocaust, case studies
13th	1st	Population explosion- family welfare program Environment and human health: Environmental health, Climate health, Infectious diseases
	2nd	Environment and human health: Water-related diseases, Risk due to chemical

Kiran Nair (Kiran)

		in food
	3rd	Human rights
	4th	Value education: environmental values, valuing nature, valuing cultures, social justice
14th	1st	Value education: Human heritage, Equitable use of resources, common property resources, ecological degradation
	2nd	Role of information technology in environment and human health. .
	3rd	Role of information technology in environment and human health.
	4th	Previous year question answer discussion
15th	1st	DOUBT CLEARING CLASS
	2nd	DOUBT CLEARING CLASS
	3rd	DOUBT CLEARING CLASS
	4th	DOUBT CLEARING CLASS
16th	1st	DOUBT CLEARING CLASS
	2nd	DOUBT CLEARING CLASS
	3rd	DOUBT CLEARING CLASS
	4th	DOUBT CLEARING CLASS
17th	1st	DOUBT CLEARING CLASS
	2nd	DOUBT CLEARING CLASS
	3rd	DOUBT CLEARING CLASS
	4th	DOUBT CLEARING CLASS
18th	1st	Revision
	2nd	Revision
	3rd	Revision
	4th	Revision

Kiran Naik (Kiran)
Lect. in Physics.