

Discipline	Semester	Name of the Teaching Faculty	Subhasmita Nath
SM	No. of Days per Week	Semester From Date:	To Date: No of Weeks
Subject	Class Allotted	1/10/2021	31/1/2022 15
Week	Class Day	Theory Topics	
1st week			
1st week	Day 1	1 Review Of Basic Concepts (04)	
	Day 2	1.1 Basic Principle of Mechanics: Force, Moment, support conditions, Conditions of equilibrium, C.G & MI, Free body diagram	
	Day-3	1.2 Review of CG and MI of different sections	
		2 Simple And Complex Stress, Strain (15)	
1st week	Day-4	2.1 Simple Stresses and Strains Introduction to stresses and strains: Mechanical properties of materials – Rigidity, Elasticity, Plasticity, Compressibility, Hardness, Toughness, Stiffness, Brittleness, Ductility, Malleability, Creep, Fatigue, Tenacity, Durability, Types of stresses - Tensile, Compressive and Shear stresses, Types of strains - Tensile, Compressive and Shear strains, Complimentary shear stress - Diagonal tensile / compressive Stresses due to shear, Elongation and Contraction, Longitudinal and Lateral strains, Poisson's Ratio, Volumetric strain, computation of stress, strain, Poisson's ratio, change in dimensions and volume etc, Hooke's law - Elastic Constants, Derivation of relationship between the elastic constants	
2nd week	Day 1		
2nd week	Day-2,3,4	2.2 Application of simple stress and strain in engineering field: Behaviour of ductile and brittle materials under direct loads, Stress Strain curve of a ductile material, Limit of proportionality, Elastic limit, Yield stress, Ultimate stress, Breaking stress, Percentage elongation, Percentage reduction in area, Significance of percentage elongation and reduction in area of cross section, Deformation of prismatic bars due to uniaxial load, Deformation of prismatic bars due to its self weight	
3rd week	Day-1,2,3, Day-4		
4th week	Day-1	2.3 Complex stress and strain Principal stresses and strains: Occurrence of normal and tangential stresses, Concept of Principal stress and Principal Planes, major and minor principal stresses and their orientations, Mohr's Circle and its application to solve problems of complex stresses	
	Day-2		
	Day-3	3 Stresses In Beams and Shafts (10)	
	Day-4	3.1 Stresses in beams due to bending: Bending stress in beams – Theory of simple bending – Assumptions – Moment of resistance – Equation for Flexure– Flexural stress distribution – Curvature of beam – Position of N.A. and Centroidal Axis – Flexural rigidity – Significance of Section modulus	

5 th week	Day 1 Day 2 Day 3 Day 4	3.2 Shear stresses in beams: Shear stress distribution in beams of rectangular, circular and standard sections symmetrical about vertical axis. 3.3 Stresses in shafts due to torsion: Concept of torsion, basic assumptions of pure torsion, torsion of solid and hollow circular sections, polar moment of inertia, torsional shearing stresses, angle of twist, torsional rigidity, equation of torsion
6 th week	Day 1 Day 2 Day 3	3.4 Combined bending and direct stresses: Combination of stresses, Combined direct and bending stresses, Maximum and Minimum stresses in Sections, Conditions for no tension, Limit of eccentricity, Middle third/fourth rule, Core or Kern for square, rectangular and circular sections, chimneys, dams and retaining walls
		4 Columns and Struts (4)
7 th week	Day 4 Day 1 Day 2	4.1 Columns and Struts, Definition, Short and Long columns, End conditions, Equivalent length / Effective length, Slenderness ratio, Axially loaded short and long column, Euler's theory of long columns, Critical load for Columns with different end conditions
		5 Shear Force and Bending Moment (12)
Week 8 th Week 9 th	Day 3, 4 Day 1, 2, 3, 4 Day 1	5.1 Types of loads and beams: Types of Loads: Concentrated (or) Point load, Uniformly Distributed load (UDL), Types of Supports: Simple support, Roller support, Hinged support, Fixed support, Types of Reactions: Vertical reaction, Horizontal reaction, Moment reaction, Types of Beams based on support conditions: Calculation of support reactions using equations of static equilibrium
	Day 2, 3	5.2 Shear force and bending moment in beams: Shear Force and Bending Moment: Signs Convention for S.F. and B.M, S.F and B.M of general cases of determinate beams with concentrated loads and udl only, S.F and B.M diagrams for Cantilevers, Simply supported beams and Over hanging beams, Position of maximum BM, Point of contra flexure, Relation between intensity of load, S.F and B.M.
Week - 10 th	Day 4 Day 1, 2, 3 Day 4	6 Slope and Deflection 6.1 Introduction: Shape and nature of elastic curve (deflection curve); Relationship between slope, deflection and curvature (No derivation), Importance of slope and deflection. (10)
11 th week	Day 1, 2, 3	6.2 Slope and deflection of cantilever and simply supported beams under concentrated and uniformly distributed load (by Double Integration method, Macaulay's method).
12 th week 13 th week	Day - 4 Day 1, 2, 3, 4 Day 1, 2, 3	7 Indeterminate Beams 7.1 Indeterminacy in beams, Principle of consistent deformation/compatibility, Analysis of propped cantilever, fixed and two span continuous beams by principle of superposition, SF and BM diagrams (point load and udl covering full span) (10)
		8 Trusses (10)
14 th week	Day 4 Day 1, 2, 3	8.1 Introduction: Types of trusses, Statically determinate and indeterminate trusses, degree of indeterminacy, stable and unstable trusses, advantages of trusses
		8.2 Analysis of trusses: Analytical method (Method of joints, method of Section)

Principal
Govt. Polytechnic
Angul

Subhasmita Nath
(PTGF)
11/10/2021

Discipline	Semester	Name of the Teaching Faculty
GATE Subject	No. of Days per Week Class Alloted 4 P/W	Savitapadma Sahoo
		Semester From Date: 1/10/2021 To Date: No of Weeks - 15 31/1/2022
Week	Class Day	Theory Topics
Week-1	Day-1	1 Introduction s (2) 1.1 Soil and Soil Engineering 1.2 Scope of Soil Mechanic 1.3 Origin and formation of soil
	Day-2	2 Preliminary Definitions and Relationship (6) 2.1 Soil as a three Phase system.
Week-2	Day-1 Day-2	2.2 Water Content, Density, Specific gravity, Voids ratio, Porosity, Percentage of air voids, air content, degree of saturation, density Index, Bulk/Saturated/dry/submerged density, Interrelationship of various soil parameters
Week-3	Day-1	3 Index Properties of Soil (4) 3.1 Water Content 3.2 Specific Gravity
	Day-2	3.3 Particle size distribution: Sieve analysis, wet mechanical analysis, particle size distribution curve and its uses 3.4 Consistency of Soils, Atterberg's Limits, Plasticity Index, Consistency Index, Liquidity Index
Week-4 Week-5	Day-1, 2 Day-1	4 Classification of Soil 4.1 General 4.2 I.S. Classification, Plasticity chart (6)
Week-5	Day-2	5 Permeability and Seepage (7)
Week-6	Day-1 Day-1	5.1 Concept of Permeability, Darcy's Law, Co-efficient of Permeability 5.2 Factors affecting Permeability. 5.3 Constant head permeability and falling head permeability Test.
Week-7	Day 1	5.4 Seepage pressure, effective stress, phenomenon of quick sand 6 Compaction and Consolidation (8)
	Day 1 Day 2	6.1 Compaction: Compaction, Light and heavy compaction Test, Optimum Moisture Content of Soil, Maximum dry density, Zero air void line, Factors affecting Compaction, Field compaction methods and their suitability
Week-8 Week-9	Day-1, 2 Day 1	6.2 Consolidation: Consolidation, distinction between compaction and consolidation. Terzaghi's model analogy of compression/ springs showing the process of consolidation - field implications 7 Shear Strength (6)
Week 9 Week 10 Week 11	Day 1 Day 1, 2 Day 1	7.1 Concept of shear strength, Mohr- Coulomb failure theory, Cohesion, Angle of internal friction, strength envelope for different type of soil, Measurement of shear strength;- Direct shear test, triaxial shear test, unconfined compression test and vane-shear test
		8 Earth Pressure on Retaining Structures (7)
Week 11	Day 1	8.1 Active earth pressure, Passive earth pressure, Earth pressure at rest.
Week 11 Week 12	Day 2 Day 1, 2	8.2 Use of Rankine's formula for the following cases (cohesion-less soil only) (i) Backfill with no surcharge, (ii) backfill with uniform surcharge
Week 13	Day 1, 2	9 Foundation Engineering 9.3 Plate load test and standard penetration test 14
Week 14	Day 1, 2	9.1 Functions of foundations, shallow and deep foundation, different type of shallow and deep foundations with sketches. Types of failure (General shear, Local shear & punching shear)
Week 15	Day 1, 2	9.2 Bearing capacity of soil, bearing capacity of soils using Terzaghi's formulae & IS Code formulae for strip, Circular and square footings, Effect water table on bearing capacity of soil

Principal
Govt. Polytechnic
Angul

Savitapadma Sahoo

Discipline	Semester	Name of the Teaching Faculty	Shravya Pradhan
B.M.C.T Subject	No. of Days per Week Class Alloted 5P/W	Semester From Date: 1/10/2021 To Date: No of Weeks -15 31/1/2022	
Week	Class Day	Theory Topics	
Week-1		PART :A (BUILDING MATERIALS) ,	
		1 Stone (5)	
	Day-1	1.1 Classification of rock, uses of stone, natural bed of stone	
	Day-2	1.2 Qualities of good building stone,	
	Day-3	1.3 Dressing of stone	
		1.4 Characteristics of different types of stone and their uses	
Week-2	D	2 Bricks (6)	
	Day-1	2.1 Brick earth – its composition	
	Day, 2, 3	2.2 Brick making – Preparation of brick earth, Moulding, Drying, Burning in kilns (continuous Process)	
Week-3	Day-1	2.3 Classification of bricks, size of traditional and modular bricks, qualities of good building bricks	
		3 Cement, Mortar and Concrete t. (7)	
Week-3	Day 1 Po	3.1 Cement: Types of cements, Properties of cements, Manufacturing of cement	
	Day-2	3.2 Importance and application of blended cement with fly ash and blast furnace slag	
	Day-3	3.3 Mortar: Definition and types of mortar	
		3.4 Sources and classification of sand, Bulking of sand	
Week-4	Day-1	3.5 Use of gravel, morrum and fly ash as different building material	
		3.6 Concrete: Definition and composition- Water cement ratio- Workability, mechanical properties and grading of aggregates, mixing, placing, compacting and curing of concrete.	
		4 Other Construction Materials . . . (7)	
Week-4	Day-2	4.1 Timber: Classification and Structure of timber	
	Day-3	4.2 Seasoning of timber – Importance	
Week-5	Day 1	4.3 Characteristics of good timber. 4.3 Clay products and refractory materials – Definition and Classification.	
		4.4 Properties and uses of refractory materials- tiles, terracotta, porcelain glazing	
	Day-2	4.5 Iron and Steel: Uses of cast iron, wrought iron, mild steel and tor steel	
Week-5		5 Surface Protective Materials . (5)	
	Day-3	5.1 Composition of Paints, enamels, varnishes	
Week-6	Day-1 Day-2	5.2 Types and uses of surface protective materials like Paints, Enamels, Varnishes, Distempers, Emulsion, French polish and Wax Polish.	
		PART: B (CONSTRUCTIONS TECHNOLOGY)	
Week-6		1 Introduction (02)	
	Day-3	1.1 Buildings and classification of buildings based on occupancy	
		1.2 Different components of a building.	
		1.3 Site investigation – objectives, site reconnaissance and exploratio	
		2 Foundations . (4)	
Week-7	Day-1	2.1 Concept of foundation and its purpose	
		2.2 Types of foundations – shallow and deep	

	Day-2	2.3 Shallow foundation-constructural details of : Spread foundations for walls, thumb rules for depth and width of foundation and thickness of concrete block
	Day-3	2.4 Deep foundations: Pile foundations-their suitability, classification of piles based on materials, function and method of installation
		3 Walls & Masonry Works (57)
Week 7	Day-3	: 3.1 Purpose of walls . :
Week 8	Day-1	3.2 Classification of walls – load bearing, non-load bearing walls, retaining walls
	Day 2	3.3 Classification of walls as per materials of construction: brick, stone, reinforced brick, reinforced concrete, precast, hollow and solid concrete block and composite masonry walls (Concept Only).
		3.4 Partition Walls : Suitability and uses of brick and wooden partition walls
		3.5 Brick masonry : Definition of different terms
	Day-3	3.6 Bond – meaning and necessity: English bond for 1and 1-1/2 Brick thick walls. T, X and right angled corner junctions. Thickness for 1and 1-1/2 brick square pillars in English bond
		3.7 Stone Masonry
		3.8 Glossary of terms –String course, corbel, cornice, block-in-course, grouting, mouldings, templates, throating, through stones, parapet, coping, pilaster and buttress
Week 8	Day 3	4 Doors, Windows And Lintels (047)
Week 9	Day 1	4.1 Glossary of terms used in doors and windows
	Day 2	4.2 Doors – different types of doors
		4.3 Windows – different types of windows
		4.4 Purpose of use of arches and lintels
Week 9	Day 3	5 Floors, Roofs and Stairs 5 (5)
	Day 3	.1 Floors: Glossary of terms ,Types of floor finishes – cast-in-situ, concrete flooring(monolithic, bonded), terrazzo tile flooring, cast in situ Terrazzo flooring, timber flooring (Concept only)
Week 10	Day 1	5.2 Roofs: Glossary of terms, Types of roofs, concept and function of flat, pitched, hipped and Sloped roofs
		5.3 Stairs: Glossary of terms; Stair case, winder, landing, stringer, newel, baluster, rise, tread, width of stair case, hand rail, nosing, head room, mumty room.
	Day 2	5.4 Various types of stair case – straight flight, dog legged, open well, quarter turn, half turn (newel and geometrical stairs), bifurcated stair, spiral stair, cantilever stair, tread riser stair.
		6 Protective, Decorative Finishes, Damp and Termite Proofing (5)
Week 10	Day 3	6.1 Plastering – purpose – Types of plastering, Types of plaster finishes – Grit finish, rough cast, smooth cast, sand faced, pebble dash, acoustic plastering and plain plaster etc. . .
Week 11	Day 1	6.2 Proportion of mortars used for different plasters, preparation of mortars, techniques of plastering and curing
		6.3 Pointing – purpose –Types of pointing
	Day 2	6.4 Painting – objectives – method of painting new and old wall surfaces, wood surface and metal surfaces – powder coating and spray painting on metal surfaces
	Days	6.5 White washing – Colour washing – Distempering – internal and external walls

		6.6 Damp and Termite proofing – Materials and Methods.
Week 12		8 Green Buildings, Energy Management and Energy Audit Of Buildings & Project . . (04)
	day 1	8.1 Concept of green building
	day 2	8.2 Introduction to Energy Management and Energy Audit of Buildings
		8.3 Aims of energy management of buildings
	day 3	8.4 Types of energy audit, Response energy audit questionnaire
		8.5 Energy surveying and audit report.

Recd
11/10/2024

Govt. Polytechnic
Angul

Shreyas Pradhan
(PTGT)

all
Principals

Discipline	Semester	Name of the Teaching Faculty
EXCEI	No. of Days per Week 4	1/10/2021 21/1/2022
Subject	Class Alloted	Semester From Date: To Date: No of Weeks 15
Week	Class Day	Theory Topics
Week 1	Day 1 Day 2	1 Introduction 1.1 Types of estimates – Plinth area, floor area / carpet area 1.2 Units and modes of measurements as per IS 1200 1.3 Accuracy of measurement for different item of work (2)
Week 2, 3, 4, 5, 6, 7, 8	Day 1, 2	2 Quantity Estimate of Building 2.1 Short wall long wall method and centre line method, deductions in masonry, plastering, white washing, painting etc., multiplying factor (paint coefficients) for painting of doors and windows (paneled/glazed), grills etc. 2.2 Detailed estimate of single storied flat roof building with shallow foundation and RCC roof slab with leak proof treatment over it including staircase and mummy room. (30)
Week 9	Day 1	
Week 9	Day 2	
Week 10	Day 1, 2	
Week 11	Day 1, 2	
Week 12	Day 1, 2	
Week 13	Day 1, 2	
Week 14	Day 1, 2	
Week 15	Day 1, 2	3 Analysis of Rates and Valuation 3.1 Analysis of rates for cement concrete, brick masonry in Cement Mortar, laterite stone masonry in Cement Mortar, cement plaster, white washing, Artificial Stone flooring, Tile flooring, concrete flooring, R.C.C. with centering and shuttering, reinforcing steel, Painting of doors and windows etc. as per OPWD. 3.2 Calculation of lead, lift, conveyance charges, royalty of materials, etc. as per Orissa P.W.D. system (Concept of C.P.W.D./Railways provisions) 3.3 Abstract of cost of estimate. 3.4 Valuation- Value and cost, scrap value, salvage value, assessed value, sinking fund, depreciation and obsolesce, methods of valuation. (22)
		4 Administrative Set-Up of Engineering Organisations: 4.1 Administrative set-up and hierarchy of Engineering department in State Govt./Central Govt./PSUs/Private Sectors etc. Duties and responsibilities of Engineers at different positions /levels. (4)

Rhuv
11/10/2021

P.P Nayak
(PTG/F)

Principal
Govt. Polytechnic
Angul
19/1/2022

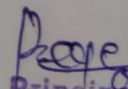
Discipline	Semester	Name of the Teaching Faculty
EVS		P. P Nayak
Subject	No. of Days per Week Class Allotted 4P/W	Semester From Date: 1 1/10/2021 To Date: No of Weeks 15 31/11/2021
Week	Class Day	Theory Topics
Week 1	Day 1, 2, 3	Unit 1: The Multidisciplinary nature of environmental studies Definition, scope and importance, Need for public awareness. (4)
Week 2	Day 1, 2, 3	Unit 2: Natural Resources Renewable and non renewable resources: a) (80) Natural resources and associated problems. ☐ Forest resources: Use and over-exploitation, deforestation, case studies, Timber extraction mining, dams and their effects on forests and tribal people. ☐ Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dam's benefits and problems. ☐ Mineral Resources: Use and exploitation, environmental effects of extracting and using mineral resources. ☐ Food Resources: World food problems, changes caused by agriculture and over grazing, effects of modern agriculture, fertilizers-pesticides problems, water logging, salinity,. ☐ Energy Resources: Growing energy need, renewable and non renewable energy sources, use of alternate energy sources, case studies. ☐ Land Resources: Land as a resource, land degradation, man induces landslides, soil erosion, and desertification. b) Role of individual in conservation of natural resources. c) Equitable use of resources for sustainable life styles.
Week 3	Day 1, 2, 3	
Week 4	Day 1, 2	
Week 5	Day 2 Day 3	
Week 6	Day 1, 2, 3	Unit 3: Systems ☐ Concept of an eco system. ☐ Structure and function of an eco system. ☐ Producers, consumers, decomposers. ☐ Energy flow in the eco systems. ☐ Ecological succession. ☐ Food chains, food webs and ecological pyramids. ☐ Introduction, types, characteristic features, structure and function of the following eco system: ☐ Forest ecosystem: ☐ Aquatic eco systems (ponds, streams, lakes, rivers, oceans, estuaries). (8)
Week 7	Day 1, 2	
Week 8	Day 2 Day 3 Day 1, 2, 3	
Week 9	Day 1, 2	Unit 4: Biodiversity and it's Conservation ☐ Introduction-Definition: genetics, species and ecosystem diversity. ☐ Biogeographically classification of India. ☐ Value of biodiversity: consumptive use, productive use, social ethical, aesthetic and option values. ☐ Biodiversity at global, national and local level. ☐ Threats to biodiversity: Habitats loss, poaching of wild life, man wildlife conflicts. (8)
Week 10	Day 2, 3	
Week 11	Day 1, 2, 3	
Week 12	Day 1, 2	Unit 5: Environmental Pollution. Definition Causes, effects and control measures of: a) Air pollution. b) Water pollution. c) Soil pollution d) Marine pollution e) Noise pollution. f) Thermal pollution g) Nuclear hazards. Solid waste Management: Causes, effects and control measures of urban and industrial wastes (12)
Week 13	Day 1, 2	Role of an individual in prevention of pollution. Disaster management: Floods, earth quake, cyclone and landslides.

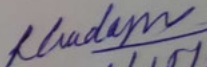
Week 11	Day 2, 3	Unit 6: Social issues and the Environment ☐ Form unsustainable to sustainable development. ☐ Urban problems related to energy. ☐ Water conservation, rain water harvesting, water shed management. ☐ Resettlement and rehabilitation of people; its problems and concern. ☐ Environmental ethics: issue and possible solutions. ☐ Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, case studies. ☐ Air (prevention and control of pollution) Act. ☐ Water (prevention and control of pollution) Act. ☐ Public awareness 10
Week 12	Day 1, 2, 3	
Week 13	Day 1, 2, 3	
Week 14	Day 1, 2, 3	Unit 7: Human population and the environment ☐ Population growth and variation among nations. ☐ Population explosion- family welfare program. ☐ Environment and human health. ☐ Human rights. ☐ Value education ☐ Role of information technology in environment and human health. 8
Week 15	Day 1, 2, 3	

Principal 01/10/2021
Govt. Polytechnic
11/10/2021 Angul

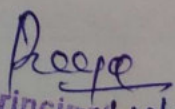
P. P Nayak
(PTGIF)

Discipline CIVIL	Semester 3rd	Name of the Teaching Faculty P. Hadapalla
CE Lab 1	No. of Days per Week Class Allotted	Semester From Date: 01/10/21 To Date: 31/10/22 No of Weeks 15
Subject	Class Day	Practical Topics
Week		
		I. Material Testing Laboratory: (60hrs)
		1. Test on Steel
1 st week 01 Oct	1 st day	Determination of Young's Modulus of steel in a tensile testing machine.
		2. Tests on Cement, Sands, Bricks, Blocks & Aggregates
1 st week	2 nd day	2.1 Determination of fineness of Cement by sieving.
2 nd week	1 st day 2 nd day	2.2 Determination of normal Consistency, initial and final setting time of Cement
3 rd week	1 st day	2.3 Determination of soundness of Cement by Le-Chatelier apparatus.
	2 nd day	2.4 Determination of Compressive Strength of cement.
4 th week	1 st day	2.5 Determination of Compressive Strength of Burnt clay, Fly Ash Bricks and Blocks.
	2 nd day	2.6 Grading of Fine & Coarse aggregate by sieving for concrete.
1 st week 10 Nov	1 st day	2.7 Determination of Specific Gravity and Bulking of sand.
	2 nd day	2.8 Determination of Specific Gravity and Bulk density of coarse aggregate.
2 nd week	1 st day 2 nd day	2.9 Grading of Road Aggregates.
		2.10 Determination of Flakiness, Elongation of Road aggregates.
3 rd week	1 st day/2 nd day	2.11 Determination of Crushing Value Test of aggregates.
4 th week	1 st day/2 nd day	2.12 Los-Angeles Abrasion Test of aggregate.
1 st week	1 st day/2 nd day	2.13 Impact test of aggregate.
2 nd week	1 st day/2 nd day	2.14 Determination of soundness test of road aggregates.
		II. Concrete Laboratory (30hrs)
3 rd week	1 st day/2 nd day	3.1 Determination of Compressive Strength of concrete cubes.
		3.2 Determination of Workability of concrete by:
4 th week	1 st day 2 nd day	a) Slump Cone method,
		b) Compaction Factor method.
5 th week	1 st day	3.3 Non Destructive tests on Concrete:
	2 nd day	a) Demonstration on Rebound hammer
2 nd week Jan	1 st day/2 nd day	b) Ultrasonic Pulse Velocity measuring Instrument


 Principal
 Govt. Polytechnic
 Anantapur
 1/10/2021


 1/10/21

Discipline CIVIL	Semester 3 rd	Name of the Teaching Faculty S. Pradhan
EP - I	No. of Days per Week Class Alloted 3D/W	Semester From Date: 01/10/21 To Date: No of Weeks 15 weeks
Subject	Week	Class Day
Week	Class Day	Practical Topics
		1.0 Preparation of plinth area estimate & detailed estimate for the following ; (2 hrs)
Oct 1 st week to		1.1 Single storeyed two roomed building with specification as per Orissa P.W.D. schedule of rates and analysis of rates
NOV 3 rd week		1.2 A two storeyed pucca Building with specification as per Orissa P.W.D. schedule of rates and analysis of rates
NOV 4 th week to Dec 2 nd week		2.0 Analysis of rates in detail for the above items of works basing on Orissa Govt. analysis of rate with help of MS Excel software. (9 hrs)
Dec 3 rd week to Jan 1 st week		3.0 Calculation of dry materials for different items of building basing on Orissa Govt. analysis of rate with help of MS Excel software (9 hrs)
Jan 2 nd week to Jan 3 rd week		4.0 Preparation of abstract of cost and bill of quantities of the estimates as per item no. 1.0 above with help of MS Excel software (6 hrs)


 Principal
 Govt. Polytechnic
 Angul
 1/10/2021

Shreyas Pradhan
 (PTGTF)

Discipline CIVIL	Semester 3 rd	Name of the Teaching Faculty P. P. Nayak
CEO-2	5P/10	Semester From Date: To Date: No of Weeks 15
Subject	Week Class Allotted	01/10/21 31/1/31
Week	Class Day	Practical Topics CIVIL ENGRG. DRAWING-1 (3 rd sem)
		1. AutoCAD SOFTWARE. (25 hrs)
1 st Week Oct	Day-1 Day-2	1.1 Recap of the Draw, Format, Edit, Dimension, Modify commands
2 nd Week Oct	Day-1 Day-2	1.2 Draw 2D drawings of the following Building Components - Doors, Windows, Cross section through wall, Spread footing, Column footing, Stairs case, R.C.C. T-beam and slab
3 rd Week Oct	Day-1 Day-2	1.3 Develop Isometric drawings of simple objects
4 th Week Oct	Day-1 Day-2	1.4 Develop 3D drawings of simple objects.
1 st Week NOV	Day-1 Day-2	
		2. PLAN, ELEVATION AND SECTIONAL ELEVATION OF FLAT ROOF BUILDING FROM LINE DIAGRAM AND GIVEN SPECIFICATIONS with use of AutoCAD software. (25 hrs)
2 nd Week NOV	Day-1	2.1 Plan at window sill level of a single storeyed R.C. roof slab building with elevation and sectional views from given line diagram and specification.
3 rd Week NOV	Day-2	
4 th Week NOV	Day-1	2.2 Detail drawing of Double storeyed pucca building with R.C.C. stair case from line diagram and given specification.
1 st Week DEC	Day-2	
2 nd Week DEC	Day-1 Day-2	2.3 Preparation of approval drawing of a residential building as per the norms of local approving authority with site plan, index plan etc.
3 rd Week DEC		3 PLAN, ELEVATION AND SECTION OF INCLINED ROOF BUILDING WITH AC SHEET/GCI/TILES ON WOODEN STRUCTURE with use of AutoCAD Commands (10 hrs)
4 th Week DEC	Day-1 Day-2	Detail drawing of inclined roof building from given line diagram and specification. (gabled / hipped)
		4. BUILDING PLANNING (15 hrs)
1 st Week JAN	Day-1	4.1 Planning of buildings for specific cost based on approximate plinth area rate.
4 th Week JAN	Day-2	4.2 Orientation of buildings, location of openings and living areas.
		4.3 Line plan of School, hostel, market complex and dispensary building

Principal
Govt. Polytechnic
Rhu Angul
17/10/2021

P. Nayak
(P.T.G.R.F.)

Discipline CIVIL	Semester 4 th	Name of the Teaching Faculty Mrs. RASMI GADAPALLA
Subject	No. of Days per Week Class Allotted (5P/W)	Semester From Date: 10/3/2022 To Date: 10/6/2022 No of Weeks
Week	Class Day	Theory Topics STRUCTURAL DESIGN-I (4 th Sem)
		1. Working stress method (WSM) (05P)
2 nd week March		1.1 Objectives of design and detailing. State the different methods of design of concrete structures
		1.2 Introduction to reinforced concrete, R.C. sections their behavior, grades of concrete and steel. Permissible stresses, assumption in W.S.M.
3 rd week March		1.3 Flexural design and analysis of single reinforced sections from first principles.
		1.4 Concept of under reinforced, over reinforced and balanced sections
		1.5 Advantages and disadvantages of WSM, reasons for its obsolescence
		2. Philosophy Of Limit State Method (LSM) (03P)
4 th week March		2.1 Definition, Advantages of LSM over WSM, IS code suggestions regarding design philosophy.
		2.2 Types of limit states, partial safety factors for materials strength, characteristic strength, characteristic load, design load, loading on structure as per I.S. 875
5 th week March		2.3 Study of I.S specification regarding spacing of reinforcement in slab, cover to reinforcement in slab, beam column & footing, minimum reinforcement in slab, beam & column, lapping, anchorage, effective span for beam & slab.
		3. Analysis and Design of Single and Double Reinforced Sections (LSM) (15P)
1 st week April		3.1 Limit state of collapse (flexure), Assumptions, Stress-Strain relationship for concrete and steel, neutral axis, stress block diagram and strain diagram for singly reinforced section.
2 nd week April		3.2 Concept of under- reinforced, over-reinforced and limiting section, neutral axis co-efficient, limiting value of moment of resistance and limiting percentage of steel required for limiting singly R.C. section.
3 rd week April		3.3 Analysis and design: determination of design constants, moment of resistance and area of steel for rectangular sections
		3.4 Necessity of doubly reinforced section, design of doubly reinforced rectangular section
		4. Shear, Bond and Development Length (LSM) (04P)

4th week April		4.1 Nominal shear stress in R.C. section, design shear strength of concrete, maximum shear stress, design of shear reinforcement, minimum shear reinforcement, forms of shear reinforcement.
		4.2 Bond and types of bond, bond stress, check for bond stress, development length in tension and compression, anchorage value for hooks 90° bend and 45° bend standards lapping of bars, check for development length.
5th week April		4.3 Numerical problems on deciding whether shear reinforcement is required or not, check for adequacy of the section in shear. Design of shear reinforcement; Minimum shear reinforcement in beams (Explain through examples only).
		5. Analysis and Design of T-Beam (LSM) (15P)
1st week May		5.1 General features, advantages, effective width of flange as per IS: 456-2000 code provisions.
1st week May		5.2 Analysis of singly reinforced T-Beam, strain diagram & stress diagram, depth of neutral axis, moment of resistance of T-beam section with neutral axis lying within the flange.
2nd week May		5.3 Simple numerical problems on deciding effective flange width. (Problems only on finding moment of resistance of T-beam section when N.A. lies within or up to the bottom of flange shall be asked in written examination)..
		6. Analysis and Design of Slab and Stair case (LSM) (15P)
3rd week May		6.1 Design of simply supported one-way slabs for flexure check for deflection control and shear.
4th week May		6.2 Design of one-way cantilever slabs and cantilevers chajjas for flexure check for deflection control and check for development length and shear.
1st week June		6.3 Design of two-way simply supported slabs for flexure with corner free to lift.
		6.4 Design of dog-legged staircase
		6.5 Detailing of reinforcement in stairs spanning longitudinally.
		7. Design of Axially loaded columns and Footings (LSM) (18P)
		7.1 Assumptions in limit state of collapse- compression.
2nd week June		7.2 Definition and classification of columns, effective length of column. Specification for minimum reinforcement; cover, maximum reinforcement, number of bars in rectangular, square and circular sections, diameter and spacing of lateral ties.
3rd week June		7.3 Analysis and design of axially loaded short square, rectangular and circular columns (with lateral ties only).
		7.4 Types of footing, Design of isolated square column footing of uniform thickness for flexure and shear.

Deepo
Principal 10/3/22
Govt. Polytechnic
Rw
10/3/22

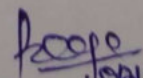
R. Chandrasekhar
(Sr. Lecturer in civil)

LAND SURVEY - I (4th sem)

Discipline	Semester 4 th	Name of the Teaching Faculty Shreyas Pradhan
CIVIL	No. of Days per (5 p/week)	Semester From Date: To Date: No of Weeks
Subject	Week Class Alloted	10/03/2022 10/6/2022
Week	Class Day	Theory Topics
2 nd week March		1. INTRODUCTION TO SURVEYING, LINEAR MEASUREMENTS: 07
3 rd week March		1.1 Surveying: Definition, Aims and objectives
4 th week March		1.2 Principles of survey-Plane surveying- Geodetic Surveying- Instrumental surveying.
5 th week March		1.3 Precision and accuracy of measurements, instruments used for measurement of distance, Types of tapes and chains.
6 th week March		1.4 Errors and mistakes in linear measurement – classification, Sources of errors and remedies.
7 th week March		1.5 Corrections to measured lengths due to-incorrect length, temperature variation, pull, sag, numerical problem applying corrections.
8 th week March		2. CHAINING AND CHAIN SURVEYING : 07
9 th week March		2.1 Equipment and accessories for chaining
10 th week March		2.2 Ranging – Purpose, signaling, direct and indirect ranging, Line ranger – features and use, error due to incorrect ranging.
11 th week March		2.3 Methods of chaining –Chaining on flat ground, Chaining on sloping ground – stepping method, Clinometer-features and use, slope correction.
12 th week March		2.4 Setting perpendicular with chain & tape, Chaining across different types of obstacles –Numerical problems on chaining across obstacles.
13 th week March		2.5 Purpose of chain surveying, Its Principles, concept of field book.
14 th week March		Selection of survey stations, base line, tie lines, Check lines.
15 th week March		2.7 Offsets – Necessity, Perpendicular and Oblique offsets, Instruments for setting offset – Cross Staff, Optical Square.
16 th week March		2.8 Errors in chain surveying – compensating and accumulative errors causes & remedies, Precautions to be taken during chain surveying.
17 th week April		3. ANGULAR MEASUREMENT AND COMPAS SURVEYING : 12
18 th week April		3.1 Measurement of angles with chain, tape & compass
19 th week April		3.2 Compass – Types, features, parts, merits & demerits, testing & adjustment of compass
20 th week April		3.3 Designation of angles- concept of meridians – Magnetic, True, arbitrary; Concept of bearings – Whole circle bearing, Quadrantal bearing, Reduced bearing, suitability of application, numerical problems on conversion of bearings

3 rd week April		3.4 Use of compasses – setting in field-centering, leveling, taking readings, concepts of Fore bearing, Back Bearing, Numerical problems on computation of interior & exterior angles from bearings.
		3.5 Effects of earth's magnetism – dip of needle, magnetic declination, variation in declination, numerical problems on application of correction for declination.
		3.6 Errors in angle measurement with compass – sources & remedies.
		3.7 Principles of traversing – open & closed traverse, Methods of traversing.
4 th week April		3.8 Local attraction – causes, detection, errors, corrections, Numerical problems of application of correction due to local attraction.
		3.9 Errors in compass surveying – sources & remedies.
		Plotting of traverse – check of closing error in closed & open traverse, Bowditch's correction, Gales table
4 th week April		4. MAP READING CADASTRAL MAPS & NOMENCLATURE: 07
		4.1 Study of direction, Scale, Grid Reference and Grid Square
		Study of Signs and Symbols
5 th week April		4.2 Cadastral Map Preparation Methodology
		4.3 Unique identification number of parcel
		4.4 Positions of existing Control Points and its types
		4.5 Adjacent Boundaries and Features, Topology Creation and verification.
5 th week April		5. PLANE TABLE SURVEYING : 07
		5.1 Objectives, principles and use of plane table surveying.
		5.2 Instruments & accessories used in plane table surveying.
		5.3 Methods of plane table surveying – (1) Radiation, (2) Intersection, (3) Traversing, (4) Resection.
		5.4 Statements of TWO POINT and THREE POINT PROBLEM.
		Errors in plane table surveying and their corrections, precautions in plane table surveying.
1 st week of May		6. THEODOLITE SURVEYING AND TRAVERSING: 15
1 st week		6.1 Purpose and definition of theodolite surveying
		6.2 Transit theodolite- Description of features, component parts, Fundamental axes of a theodolite, concept of vernier, reading a vernier, Temporary adjustment of theodolite
1 st week		6.3 Concept of transiting – Measurement of horizontal and vertical angles.
2 nd week		6.4 Measurement of magnetic bearings, deflection angle, direct angle, setting out angles, prolonging a straight line with theodolite, Errors in Theodolite observations.

2nd week		6.5 Methods of theodolite traversing with – inclined angle method, deflection angle method, bearing method, Plotting the traverse by coordinate method, Checks for open and closed traverse.
3rd week		6.6 Traverse computation – consecutive coordinates, latitude and departure, Gale's traverse table, Numerical problems on omitted measurement of lengths & bearings
3rd week		6.7 Closing error – adjustment of angular errors, adjustment of bearings, numerical problems
3rd week		6.8 Balancing of traverse – Bowditch's method, transit method, graphical method, axis method, calculation of area of closed traverse.
		7.LEVELLING AND CONTOURING : 15
4th week or		7.1 Definition and Purpose and types of leveling– concepts of level surface, Horizontal surface, vertical surface, datum, R. L., B.M.
May		7.2 Instruments used for leveling, concepts of line of collimation, axis of bubble tube, axis of telescope, Vertical axis.
4th or May		7.3 Levelling staff – Temporary adjustments of level, taking reading with level, concept of bench mark, BS, IS, FS, CP, HI.
4th week		7.4 Field data entry – level Book – height of collimation method and Rise & Fall method, comparison, Numerical problems on reduction of levels applying both methods, Arithmetic checks.
5th week		7.5 Effects of curvature and refraction, numerical problems on application of correction.
5th week		7.6 Reciprocal leveling – principles, methods, numerical problems, precise leveling.
or May		7.7 Errors in leveling and precautions, Permanent and temporary adjustments of different types of levels.
1st week		7.8 Definitions, concepts and characteristics of contours.
or June		7.9 Methods of contouring, plotting contour maps, Interpretation of contour maps, toposheets.
1st week		7.10 Use of contour maps on civil engineering projects – drawing cross-sections from contour maps, locating proposal routes of roads / railway / canal on a contour map, computation of volume of earthwork from contour map for simple structure.
1st week		7.11 Map Interpretation: Interpret Human and Economic Activities (i.e.: Settlement, Communication, Land use etc.), Interpret Physical landform (i.e.: Relief, Drainage Pattern etc.), Problem Solving and Decision Making
2nd week or June		8.COMPUTATION OF AREA & VOLUME: 05
		8.1 Determination of areas, computation of areas from plans.
2nd week		8.2 Calculation of area by using ordinate rule, trapezoidal rule, Simpson's rule.
June		8.3 Calculation of volumes by prismoidal formula and trapezoidal formula, Prismoidal corrections, curvature correction for volumes.


 Principal
 Govt. Polytechnic
 Angul
 10/3/2022

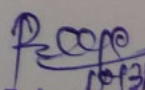
Shreyas Pradhan
 (PTOI F)

HIGHWAY ENGINEERING - (4th Sem)

(5P/week)

Discipline CIVIL	Semester 4th sem	Name of the Teaching Faculty Abinash Behra
Subject	No. of Days per Week Class Alloted (5P/week)	Semester From Date: 10/03/2022 To Date: 10/06/2022 No of Weeks
Week	Class Day	Theory Topics
		1
		Introduction (05 hrs)
2nd week or March		1.1 Importance of Highway transportation: importance organizations like Indian roads congress, Ministry of Surface Transport, Central Road Research Institute.
2nd week		1.2 Functions of Indian Roads Congress
2nd week		1.3 IRC classification of roads
2nd week		1.4 Organisation of state highway department
2nd week		
3rd week		2. Road Geometrics (20 hrs)
or March		2.1 Glossary of terms used in geometric and their importance, right of way, formation width, road margin, road shoulder, carriage way, side slopes, kerbs, formation level, camber and gradient
4th week		2.2 Design and average running speed, stopping and passing sight distance
or March		2.3 Necessity of curves, horizontal and vertical curves including transition curves and super elevation, Methods of providing super - elevation
4th week		
5th week		3. Road Materials (09 hrs)
or March		3.1 Difference types of road materials in use: soil, aggregates, and binders
5th week		3.2 Function of soil as highway Subgrade
5th week		3.3 California Bearing Ratio: methods of finding CBR valued in the laboratory and at site and their significance
5th week		3.4 Testing aggregates: Abrasion test, impact test, crushing strength test, water absorption test & soundness test
1st week		4. Road Pavements (13 hrs)
or April		4.1 Road Pavement: Flexible and rigid pavement, their merits and demerits, typical cross-sections, functions of various components
2nd week		Flexible pavements:
or April		4.2 Sub-grade preparation:
3rd week or April		Setting out alignment of road, setting out bench marks, control pegs for embankment and cutting, borrow pits, making profile of embankment, construction of embankment, compaction, stabilization, preparation of subgrade, methods of checking camber, gradient and alignment as per recommendations of IRC, equipment used for subgrade preparation
4th week		4.3 Sub base Course:
4th week		Necessity of sub base, stabilized sub base, purpose of stabilization (no designs)

5th week		Types of stabilization
4th April		☑ Mechanical stabilization
5th week		☑ Lime stabilization
1st week		☑ Cement stabilization
4th May		☑ Fly ash stabilization
1st week		4.4 Base Course:
2nd week		Preparation of base course, Brick soling, stone soling and metalling, Water Bound Macadam and wet-mix Macadam, Bituminous constructions: Different types
2nd week		4.5 Surfacing:
2nd week		☑ Surface dressing
2nd week		(i) Premix carpet and (ii) Semi dense carpet
2nd week		☑ Bituminous concrete
2nd week		☑ Grouting
3rd week		4.6 Rigid Pavements:
3rd week		Concept of concrete roads as per IRC specifications
3rd week		
4th week		5. Hill Roads: (07 hr)
4th May		5.1 Introduction: Typical cross-sections showing all details of a typical hill road in cut, partly in cutting and partly in filling
4th week		5.2 Breast Walls, Retaining walls, different types of bends
5th week		6. Road Drainage: (07 hr)
4th		6.1 Necessity of road drainage work, cross drainage works
May		6.2 Surface and sub-surface drains and storm water drains. Location, spacing and typical details of side drains, side ditches for surface drainage, intercepting drains, pipe drains in hill roads, details of drains in cutting embankment, typical cross sections.
1st week		7. Road Maintenance : (07 hr)
4th June		7.1 Common types of road failures – their causes and remedies
1st week		7.2 Maintenance of bituminous road such as patch work and resurfacing
1st week		7.3 Maintenance of concrete roads – filling cracks, repairing joints, maintenance of shoulders (berm), maintenance of traffic control devices
1st week		7.4 Basic concept of traffic study, Traffic safety and traffic control signal
2nd week		8. Construction equipments: (07 hr)
4th June		Preliminary ideas of the following plant and equipment:
2nd week		8.1 Hot mixing plant
2nd week		8.2 Tipper, tractors (wheel and crawler) scraper, bulldozer, dumpers, shovels, graders, roller dragline
2nd week		8.3 Asphalt mixer and tar boilers
2nd week		8.4 Road pavers
2nd week		8.5 Modern construction equipments for roads.


 Principal
 Govt. Polytechnic
 Angul
 R/W
 10/3/2022

y Abinash Behera
 (PTGF)

HYDRAULICS & IRRIGATION ENGINEERING

(6th sem)

Discipline	Semester	Name of the Teaching Faculty
CIVIL		Ashutosh Mahapatra
Subject	No. of Days per Week	Semester From Date: To Date: No of Weeks
	Class Alloted 5P/week	10/3/22 10/6/22
Week	Class Day	Theory Topics
		PART: A (Hydraulics) (12 hrs)
2 nd week		1. HYDROSTATICS:
or March		1.1 Properties of fluid: density, specific gravity, surface tension, capillarity, viscosity and their uses
3 rd week		1.2 Pressure and its measurements: intensity of pressure, atmospheric pressure, gauge pressure, absolute pressure and vacuum pressure; relationship between atmospheric pressure, absolute pressure and gauge pressure; pressure head; pressure gauges.
4 th week		1.3 Pressure exerted on an immersed surface: Total pressure, resultant pressure, expression for total pressure exerted on horizontal & vertical surface.
		2. KINEMATICS OF FLUID FLOW: (12)
5 th week or March		2.1 Basic equation of fluid flow and their application: Rate of discharge, equation of continuity of liquid flow, total energy of a liquid in motion- potential, kinetic & pressure, Bernoulli's theorem and its limitations. Practical applications of Bernoulli's equation.
5 th week		2.2 Flow over Notches and Weirs: Notches, Weirs, types of notches and weirs, Discharge through different types of notches and weirs- their application (No Derivation)
1 st week April		2.3 Types of flow through the pipes: uniform and non uniform; laminar and turbulent; steady and unsteady; Reynold's number and its application
2 nd week		2.4 Losses of head of a liquid flowing through pipes: Different types of major and minor losses. Simple numerical problems on losses due to friction using Darcy's equation, Total energy lines & hydraulic gradient lines (Concept Only).
2 nd week		2.5 Flow through the Open Channels: Types of channel sections-rectangular, trapezoidal and circular, discharge formulae- Chezy's and Manning's equation, Best economical section.
		3. PUMPS: (05)
3 rd week		3.1 Type of pumps
or April		3.2 Centrifugal pump: basic principles, operation, discharge, horse power & efficiency.
3 rd week		3.3 Reciprocating pumps: types, operation, discharge, horse power & efficiency
3 rd week		
3 rd week		PART: B (Irrigation Engineering)
3 rd week		

4th week	1. Hydrology (04)
05 April	1.1 Hydrology Cycle
4th week	1.2 Rainfall: types, intensity, hyetograph
4th week	1.3 Estimation of rainfall, rain gauges, Its types (concept only),
4th week	1.4 Concept of catchment area, types, run-off, estimation of flood discharge by Dicken's and Ryve's formulae
5th week	2. Water Requirement of Crops (04)
05 April	2.1 Definition of irrigation, necessity, benefits of irrigation, types of irrigation
5th week	2.2 Crop season
5th week	2.3 Duty, Delta and base period their relationship, overlap allowance, kharif and rabi crops
5th week	2.4 Gross command area, culturable command area, Intensity of Irrigation, irrigable area, time factor, crop ratio
1st week	3. FLOW IRRIGATION (02)
May	3.1 Canal irrigation, types of canals, loss of water in canals
1st week	3.2 Perennial irrigation
1st week	3.3 Different components of irrigation canals and their functions
2nd week	3.4 Sketches of different canal cross-sections
3rd week	3.5 Classification of canals according to their alignment, Various types of canal lining – Advantages and disadvantages
3rd week	4. WATER LOGGING AND DRAINAGE : (02)
3rd week	4.1 Causes and effects of water logging, detection, prevention and remedies
4th week	5. DIVERSION HEAD WORKS AND REGULATORY STRUCTURES (08)
4th week	5.1 Necessity and objectives of diversion head works, weirs and barrages
4th week	5.2 General layout, functions of different parts of barrage
5th week	5.3 Silting and scouring
5th week	5.4 Functions of regulatory structures
1st week	6. CROSS DRAINAGE WORKS : (02)
June	6.1 Functions and necessity of Cross drainage works - aqueduct, siphon, super-passage, level crossing
1st week	6.2 Concept of each with help of neat sketch
2nd week	7. DAMS (08)
June	7.1 Necessity of storage reservoirs, types of dams
2nd week	7.2 Earthen dams: types, description, causes of failure and protection measures.
2nd week	7.3 Gravity dam- types, description, Causes of failure and protection measures.
2nd week	7.4 Spillways- Types (With Sketch) and necessity.

Deepa
 Principal
 Govt. Polytechnic
 Anand
 10/3/22

Ashutosh
 Mahapatra
 (PT GF)

Discipline <i>CIVIL</i>	Semester <i>4/15</i>	Name of the Teaching Faculty <i>R. Gadapalla</i>
<i>LSP-1</i>	No. of Days per Week Class Allotted <i>7</i>	Semester From Date: <i>19/03/22</i> To Date: No of Weeks <i>15</i>
Subject	Class Day	Practical Topics
<i>MARCH</i>		
<i>2nd week</i>	<i>Day-1</i>	1.0 Linear Measurements, Chaining and Chain Surveying: (05hrs)
	<i>Day-1</i>	1.1 Testing and adjusting of a metric chain.
	<i>Day-2</i>	1.2 Measurement of distance between two points (more than 2 chain lengths apart) with chain including direct ranging.
	<i>Day-2</i>	1.3 Setting out different types of triangles, given the lengths of sides with chain and tape.
	<i>Day-2</i>	1.4 Measurement of distance between two points by chaining across a sloped ground using stepping method and a clinometer.
	<i>Day-2</i>	1.5 Measurement of distance by chaining across a obstacles on the chain line i) a pond ii) a building iii) a stream/ river (in the event of non-availability of stream / river, a pond or lake may be taken, considering that chaining around the same is not possible.
<i>3rd week</i>	<i>Day-2</i>	1.6 Setting perpendicular offsets to various objects (at least 3) from a chain line using-(1) tape, (2) cross-staff, (3) optical square and comparing the accuracy of the 3 methods.
	<i>Day-2</i>	1.7 Setting oblique offsets to objects (at least 3) from a chain using tape.
<i>MARCH</i>		
<i>3rd week</i>	<i>Day-1</i>	2.0 Angular Measurement and Compass Surveying: (12hrs)
	<i>Day-2</i>	2.1 Testing and adjustment of Prismatic compass and Surveyor's compass.
	<i>Day-2</i>	2.2 Measurement of bearings of lines (at least 3 lines) and determination of included angles using Prismatic compass and Surveyor's compass.
	<i>Day-2</i>	2.3 Setting out triangles (at least 2) with compass, given the length and bearing of one side and included angles.
<i>APR</i>	<i>Day-2</i>	2.4 Setting out a closed traverse of 5 sides, using prismatic compass, given bearing of one line and included angles and lengths of sides.
<i>1st week</i>	<i>Day-2</i>	2.5 Conducting chain and compass traverse surveying in a given plot of area (2plots) and recording data in the field book. (5 to 6 students/groups)
<i>MARCH</i>		
<i>APR</i>	<i>MARCH</i>	3.0 Map Reading Cadastral Maps & Nomenclature: (8hrs)
<i>3rd week</i>	<i>Day-1</i>	3.1 Study of direction, Scale, Grid Reference and Grid Square.
<i>4th week</i>	<i>Day-2</i>	3.2 Study of Signs and Symbols.
	<i>Day-2</i>	3.3 Cadastral Map Preparation Methodology.
	<i>Day-2</i>	3.4 Unique identification number of parcel.
<i>3rd week</i>	<i>Day-2</i>	3.5 Positions of existing Control Points and its types.
	<i>Day-2</i>	3.6 Adjacent Boundaries and Features, Topology Creation and verification.
<i>APRIL</i>		
<i>APR</i>	<i>MARCH</i>	4.0 Plane Table Surveying: (13hrs)

7 APR
1st Week

2nd Week	Day-1	4.1 Setting up of Plane Table and Plotting five points by radiation method and five inaccessible points by intersection method.
4th Week	Day-2	4.2 Conducting Plane Table surveying in a given plot of area by traversing (Atleast a 5-sided traverse and locating the objects).
APR 2nd Week	Day-1 Day-2	4.3 Plane table surveying by Resection method (two point & three point problem method).
APRIL		5.0 Theodolite Traversing: (10 hrs)
3rd Week	Day-1	5.1 Measurement of horizontal angles (3nos.) by repetition and reiteration method and compare two methods
	Day-2	5.2 Prolonging a given straight line with the help of a theodolite.
3rd Week	Day-2	5.3 Determination of magnetic bearing of 3 given straight lines Setting out a closed traverse with 6 sides and entering the field data.
	Day-2	5.4 Plotting the traverse from exercise 4.1 and checking the error of closure.
	Day-2	5.5 Setting out an open traverse with 5 sides and entering the field data.
	Day-2	5.6 Plotting the traverse from exercise 4.3 and checking the error of closure.
APRIL		6.0 Leveling and Contouring: (12 hrs)
4th Week	Day-1	6.1 Making temporary adjustments of Levels.
	Day-1	6.2 Determining Reduced Levels of five given points taking staff readings with Levels.
	Day-2	6.3 Determining the difference of levels between two points (3 pairs of points / group) by taking staff readings form single set up of level, recording the readings in level book and application of Arithmetic check. (At least 3 change points must be covered).
	Day-2	6.4 Conduct Fly Leveling (Compound) between two distant points with respect to R.L. of a given B.M. and reduction of levels by both height of collimation and rise & fall method and applying Arithmetic check. (At least 3 change points must be covered).
MAY 1st Week	Day-1	6.5 Conduct profile leveling along the given alignment for a road / canal for 150m length, taking L. S. at every 15m and C. S. at 1m & 3m apart on both sides at every 30m interval and recording the data in level book and applying arithmetical check.
	Day-1	6.6 Locating contour points in the given area by direct method / indirect method.
	Day-1	6.7 Conducting block level survey in the given area.
	Day-2	6.8 Plotting and drawing contour map of a given area by radial method.
	Day-2	6.9 Map Interpretation: Interpret Human and Economic Activities (i.e.: Settlement, Communication, Land use etc.), Interpret Physical landform (i.e.: Relief, Drainage Pattern etc.), Problem Solving and Decision Making.
MAY		7.0 Basics of Aerial Photography: (9 hrs)
2nd Week	Day-1	7.1 Film
	Day-1	7.2. Focal Length

	Day-2	7.3. Scale
	Day-2	7.4. Types of Aerial Photographs (Oblique, Straight)
	MAY	8.0 Basics of Photogrammetry, DEM and Ortho Image generation: (36 hrs)
⇒ MAY 3rd week		Photogrammetry:
	Day-1	8.1 Classification of Photogrammetry
	Day-1	8.2 Aerial Photogrammetry
	Day-2	8.3 Terrestrial Photogrammetry
		Photogrammetry Process:
⇒ MAY 4th week	Day-2	8.4 Acquisition of Imagery using aerial and satellite platform
	Day-1	8.5 Control Survey
	Day-2	8.6 Geometric Distortion in Imagery
⇒ JUNE 1st week	Day-1	8.7 Application of Imagery and its support data
	Day-1	8.8 Orientation and Triangulation
	Day-2	8.9 Stereoscopic Measurement: X-parallax and Y-parallax
	Day-2	8.10 DTM/DEM Generation.
⇒ JUNE 2nd week	Day-1	8.11 Ortho Image Generation

Proppa
 10/3/22
 Principal
 Govt. Polytechnic
 Angul
 Proppa
 10/03/22

Rhandem
 10/3/22

Discipline CIVIL	Semester 7/15	Name of the Teaching Faculty R. Gadapalla
Subject CED-II	No. of Days per Week 6P/W	Semester From Date: 10/03/22 To Date: 10/06/22 No of Weeks
Week	Class Day	Practical Topics CIVIL ENGR. DRAWING- II (4th sem)
MARCH 2nd Week to	(4 Weeks)	1.0 Detailed drawing of culvert 25 hrs Half foundation plan and half top plan, cross sectional elevation and longitudinal section of
APR - 1st Week		i) RCC Slab culvert with right angled wing wall
APR - 2nd Week to	(6 Weeks)	ii) Hume pipe culvert with splayed wing wall
MAY - 3rd Week		2.0 Irrigation Structures (35 hrs) 2.1 Detail drawing of a vertical drop type fall (Sarada Type) from given specifications
MAY - 4th Week to		2.2 Drawing of a Drainage siphon from given specifications
JUNE - 2nd Week		3 Plumbing and Sanitary connections and fittings of a two roomed building (10 hrs)
		4 Detailed drawing of septic tank up to 50 users with soak pit and necessary connection from the water closet.

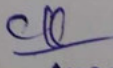
R. Gadapalla
10/31/2022

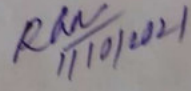
P. S. Rao
Principal
Govt. Polytechnic
Angul
P. S. Rao
01/03/22

Discipline CIVIL	Semester 5th	Name of the Teaching Faculty R. Gradipalla
RABE Subject	No. of Days per Week Class Allotted	Semester From Date: To Date: No of Weeks 1/10/2021 31/11/2022
Week	Class Day UP/Wed	Theory Topics
1st week		Section – A: RAILWAYS 1 Introduction 1.1 Railway terminology 1.2 Advantages of railways 1.3 Classification of Indian Railways (2hr)
October 2nd week		2 Permanent way 2.1 Definition and components of a permanent way 2.2 Concept of gauge, different gauges prevalent in India, suitability of these gauges under different conditions (5hr)
2nd week		3 Track materials 3.1 Rails 3.1.1 Functions and requirement of rails 3.1.2 Types of rail sections, length of rails 3.1.3 Rail joints – types, requirement of an ideal joint 3.1.4 Purpose of welding of rails & its advantages 3.1.5 Creep- definition, cause & prevention 3.2 Sleepers 3.2.1 Definition, function & requirements of sleepers 3.2.2 Classification of sleepers 3.2.3 Advantages & disadvantages of different types of sleepers 3.3 Ballast 3.3.1 Functions & requirements of ballast 3.3.2 Materials for ballast 3.4 Fixtures for Broad gauge 3.4.1 Connection of rails to rail-fishplate, fish bolts 3.4.2 Connection of rails to sleepers (10hrs)
1st week NOV		4 Geometric for broad gauge 4.1 Typical cross – sections of single & double broad gauge railway track in cutting and embankment 4.2 Permanent & temporary land width 4.3 Gradients for drainage 4.4 Super elevation – necessity & limit valued (10hrs)
2nd week DEC		5 Points and crossings 5.1 Definition, necessity of Points and crossings 5.2 Types of points & crossings with tie diagrams (4hrs)
3rd week		6 Laying & maintenance of track 6.1 Methods of Laying & maintenance of track 6.2 Duties of a permanent way inspecto (4hrs)
4th week		Section – B: BRIDGES 1 Introduction to bridges 1.1 Definitions 1.2 Components of a bridge 1.3 Classification of bridges 1.4 Requirements of an ideal bridge (2hrs)
2nd week Jan		2 Bridge site investigation, hydrology & planning 2.1 Selection of bridge site, Alignment, 2.2 Determination of Flood Discharge 2.3 Waterway & economic span 2.4 Afflux, clearance & free board (5hrs)
3rd week Jan		3 Bridge foundation 3.1 Scour depth minimum depth of foundation 3.2 Types of bridge foundations – spread foundation, pile foundation- well foundation – sinking of wells, caisson foundation 3.3 Cofferdams (2hrs)
4th week		4 Bridge substructure and approaches 4.1 Types of piers 4.2 Types of abutments 4.3 Types of wing walls 4.4 Approaches (5hrs)
5th week or January		5 Culvert & Cause ways 5.1 Types of culvers – brief description 5.2 Types of causeways – brief description (5hrs)

STRUCTURAL DESIGN - II

Discipline	Semester ^{5th}	Name of the Teaching Faculty ^{Subhasmita Nayak}
CIVIL	No. of Days per Week Class	Semester From Date: To Date: No of Weeks
Subject ^{SD II}	Alloted	^{11/10/2021} ^{31/1/2022}
Week ^{up to}	Class Day	Theory Topics ^(5hrs)
1st to 3rd week or OCT		1 Introduction: 1.1 Common steel structures, Advantages & disadvantages of steel structures. 1.2 Types of steel, properties of structural steel. 1.3 Rolled steel sections, special considerations in steel design. 1.4 Loads and load combinations. 1.5 Structural analysis and design philosophy. 1.6 Brief review of Principles of Limit State design
4th week or NOV to 1st week or NOV		2 Structural Steel Fasteners and Connections. 2.1 Bolted Connections 2.1.1 Classification of bolts, advantages and disadvantages of bolted connections. 2.1.2 Different terminology, spacing and edge distance of bolt holes. 2.1.3 Types of bolted connections. 2.1.4 Types of action of fasteners, assumptions and principles of design. 2.1.5 Strength of plates in a joint, strength of bearing type bolts (shear capacity & bearing capacity), reduction factors, and shear capacity of HSFG bolts. 2.1.6 Analysis & design of Joints using bearing type and HSFG bolts (except eccentric load and prying forces) 2.1.7 Efficiency of a joint. 2.2 Welded Connections: 2.2.1 Advantages and Disadvantages of welded connection 2.2.2 Types of welded joints and specifications for welding 2.2.3 Design stresses in welds. 2.2.4 Strength of welded joints. ^(10hrs)
2nd week to 3rd week		3 Design of Steel tension Members 3.1 Common shapes of tension members. 3.2 Maximum values of effective slenderness ratio. 3.4 Analysis and Design of tension members. (Considering strength only and concept of block shear failure. ^(10hrs)
4th week to 2nd week or Dec		4 Design of Steel Compression members. 4.1 Common shapes of compression members. 4.2 Buckling class of cross sections, slenderness ratio 4.3 Design compressive stress and strength of compression members. 4.4 Analysis and Design of compression members (axial load only). ^(10hrs)
3rd to 5th week or Dec		5 Design of Steel beams: 5.1 Common cross sections and their classification. 5.2 Deflection limits, web buckling and web crippling. 5.3 Design of laterally supported beams against bending and shear ^(10hrs)
1st & 2nd week or Jan		6 Design of Tubular Steel Structures: 6.1 Round Tubular Sections, Permissible Stresses 6.2 Tubular Compression & Tension Members 6.3 Joints in Tubular trusses ^(6hrs)
3rd to 5th week or Jan		7 Design of Masonry Structures: 7.1 Design considerations for Masonry walls & Columns, Load Bearing & Non-Load Bearing walls, Permissible stresses, Slenderness Ratio, Effective Length, Height & Thickness. ^(9hrs)


 Principal
 Govt. Polytechnic
 Raipur Angul
 11/10/21

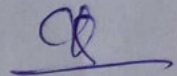

 Subhasmita Nayak
 (PT GF)

WATER SUPPLY & WASTE WATER ENGINEERING

Discipline CIVIL	Semester 5th	Name of the Teaching Faculty Shreyas Bhodhan
Subject WSEWWE	No. of Days per Week 5/10 Class Alloted	Semester From Date: 1/10/2021 To Date: No of Weeks 15 31/1/2022
Week	Class Day	Theory Topics
Week 1	Day 1, 2, 3, 4	SECTION A: WATER SUPPLY 1 Introduction to Water Supply, Quantity and Quality of water 1.1 Necessity of treated water supply 1.2 Per capita demand, variation in demand and factors affecting demand 1.3 Methods of forecasting population, Numerical problems using different methods 1.4 Impurities in water – organic and inorganic, Harmful effects of impurities 1.5 Analysis of water – physical, chemical and bacteriological 1.6 Water quality standards for different uses (10)
Week 2	Day 1, 2, 3, 4	
Week 3	Day 1, 2, 3, 4	(8) 2 Sources and Conveyance of water 2.1 Surface sources – Lake, stream, river and impounded reservoir 2.2 Underground sources – aquifer type & occurrence – Infiltration gallery, infiltration well, springs, well 2.3 Yield from well- methods of determination, Numerical problems using yield formulae (deduction excluded) 2.4 Intakes – types, description of river intake, reservoir intake, canal intake 2.5 Pumps for conveyance & distribution – types, selection, installation. 2.6 Pipe materials – necessity, suitability, merits & demerits of each type 2.7 Pipe joints – necessity, types of joints, suitability, methods of jointing Laying of pipes – method
Week 4	Day 1 Day 2 Day 3	
Week 5	Day 4	(12) 3 Treatment of water Note: 1. Design of treatment units excluded. 2. Students may be asked to prepare detailed sketches of units, preferably from working drawing, as home assignment 3. Field visit to treatment plant, under practical should be arranged after covering this unit. 3.1 Flow diagram of conventional water treatment system 3.2 Treatment process / units : 3.2.1 Aeration ; Necessity 3.2.2 Plain Sedimentation : Necessity, working principles, Sedimentation tanks – types, essential features, operation & maintenance 3.2.3 Sedimentation with coagulation: Necessity, principles of coagulation, types of coagulants, Flash Mixer, Flocculator, Clarifier (Definition and concept only) 3.2.4 Filtration : Necessity, principles, types of filters Slow Sand Filter, Rapid Sand Filter and Pressure Filter – essential features 3.2.5 Disinfection : Necessity, methods of disinfection Chlorination – free and combined chlorine demand, available chlorine, residual chlorine, pre-chlorination, break point chlorination, super chlorination 3.2.6 Softening of water – Necessity, Methods of softening – Lime soda process and Ion exchange method (Concept Only)
Week 6	Day 1 Day 2 Day 3 Day 4	

Week 7	Day 1, 2	(8)	4 Distribution system And Appurtenance in distribution system: 4.1 General requirements, types of distribution system-gravity, direct and combined 4.2 Methods of supply – intermittent and continuous 4.3 Distribution system layout – types, comparison, suitability 4.4 Valves-types, features, uses, purpose-sluice valves, check valves, air valves, scour valves, Fire hydrants, Water meters
Week 8	Day 3, 4		
Week 8	Day 1, 2, 3	(2)	5 W/s plumbing in building : 5.1 Method of connection from water mains to building supply 5.2 General layout of plumbing arrangement for water supply in single storied and multi-storied building as per I.S. code
Week 8	Day 4		
Week 9	Day 1, 2, 3, 4	(5)	SECTION B: WASTE WATER ENGINEERING 6 Introduction 6.1 Aims and objectives of sanitary engineering 6.2 Definition of terms related to sanitary engineering 6.3 Systems of collection of wastes– Conservancy and Water Carriage System – features, comparison, suitability
Week 10	Day 1, 2, 3, 4		
Week 11	Day 1, 2	(7)	7 Quantity and Quality of sewage 7.1 Quantity of sanitary sewage – domestic & industrial sewage, variation in sewage flow, numerical problem on computation quantity of sanitary sewage. 7.2 Computation of size of sewer, application of Chazy's formula, Limiting velocities of flow : self-cleaning and scouring 7.3 General importance, strength of sewage, Characteristics of sewage-physical, chemical & biological 7.4 Concept of sewage-sampling, tests for – solids, pH, dissolved oxygen, BOD, COD
Week 12	Day 3, 4		
Week 12	Day 1, 2	(5)	8 Sewerage system 8.1 Types of system-separate, combined, partially separate , features, comparison between the types, suitability 8.2 Shapes of sewer – rectangular, circular, avoid-features, suitability 8.3 Laying of sewer-setting out sewer alignmen
Week 12	Day 3, 4		
Week 13	Day 1, 2	(7)	9 Sewer appurtenances and Sewage Disposal: 9.1 Manholes and Lamp holes – types, features, location, function 9.2 Inlets, Grease & oil trap – features, location, function 9.3 Storm regulator, inverted siphon – features, location, function 9.4 Disposal on land – sewage farming, sewage application and dosing, sewage sickness-causes and remedies 9.5 Disposal by dilution – standards for disposal in different types of water bodies, self purification of stream
Week 13	Day 3, 4		
Week 13	Day 4	(8)	10 Sewage treatment : (Note: 1.Design of treatment units excluded. 2.Students may be asked to prepare detailed sketches of units, preferably from working drawing, as home assignment. 3.Field visit to treatment plant, under practical should be arranged after covering this unit.) 10.1 Principles of treatment, flow diagram of conventional treatment 10.2 Primary treatment – necessity, principles, essential features, functions 10.3 Secondary treatment – necessity, principles, essential features, functions
Week 14	Day 1, 2, 3, 4		
Week 15	Day 1, 2		

Week 15	Day 3, 4	<p>(3)</p> <p>11 Sanitary plumbing for building : 11.1 Requirements of building drainage, layout of lavatory blocks in residential buildings, layout of building drainage</p> <p>11.2 Plumbing arrangement of single storied & multi storied building as per I.S. code practice 11.3 Sanitary fixtures – features, function, and maintenance and fixing of the fixtures – water closets, flushing cisterns, urinals, inspection chambers, traps, anti syphonage pip</p>
---------	----------	---



Principal
Govt. Polytechnic
Angul
17/11/2021

Shreyas Pradhan
(PTGR)

Discipline	Semester	Name of the Teaching Faculty <i>Swetapadma Sahoo</i>	
Subject <i>E&CE-11</i>	No. of Days per Week Class Alloted <i>9/10</i>	Semester From Date: <i>1/10/2021</i>	To Date: No of Weeks <i>31/1/2022</i>
Week	Class Day	Theory Topics	
<i>Week 1</i>	<i>Day 1, 2</i>	1. Detailed estimate of culverts and bridges 1.1 Detailed estimate of a RCC slab culvert with right angled wing walls with bar bending schedule. 1.2 RCC Hume pipe culvert with splayed angled wing wal (<i>12</i>)	
<i>Week 2</i>	<i>Day 1, 2</i>		
<i>Week 3</i>	<i>Day 1, 2</i>		
<i>Week 4</i>	<i>Day 1, 2</i>	2. Estimate of irrigation structures 2.1 Detailed estimate of simple type of vertical fall to given specification 2.2 Detailed estimate of drainage siphon to given specification (<i>14</i>)	
<i>Week 5</i>	<i>Day 1, 2</i>		
<i>Week 6</i>	<i>Day 1, 2</i>		
<i>Week 7</i>	<i>Day 2</i>	3. Detailed estimate of roads 3.1 Detail estimate of a water bound macadam road 3.2 Detailed estimate of a flexible pavement in cutting / filling 3.2 Detailed estimate of septic tank and soak pit for 50 users (<i>12</i>)	
<i>Week 8</i>	<i>Day 1, 2</i>		
<i>Week 9</i>	<i>Day 1, 2</i>		
<i>Week 10</i>	<i>Day 1, 2</i>	4. Miscellaneous estimates 4.1 Tube well, Piles and Pile cap, Isolated and combined footings. - (<i>12</i>)	
<i>Week 11</i>	<i>Day 1, 2</i>		
<i>Week 12</i>	<i>Day 1, 2</i>		
<i>Week 13</i>	<i>Day 1, 2</i>	5. PWD Accounts works 5.1 Works 5.1.1 Classification of work-original, major, petty, repair work, annual repair, special repair, quadrantal repair. 5.1.2 Concept of Method of execution of works through the contractors and department, contract and agreement, work order, types of contract, piece work agreement. 5.2 Accounts of works – 5.2.1 Explanation of various terms Administrative approval, technical sanction, tender, preparation of notice inviting tender, quotations, earnest money, E-tendering, security deposit, advance payment, intermediate payment, final payment, running bill, final bill, regular and temporary establishment, cash, major & subhead of account, temporary advance (imprest money), supervision charges, suspense account, debit, credit, book transfer, voucher and related accounts. 5.2.2 Measurement book use & maintenance, procedure of marking entries of measurement of work and supply of materials, labour employed, standard measurement books and common irregularity 5.2.3 Muster roll : Its preparation & use for making payment of pay & wages 5.2.4 Acquittance Roll : Its preparation & use for making payment of pay & wages 5.2.5 Labour & <i>8</i>	
<i>Week 14</i>	<i>Day 1, 2</i>		
<i>Week 15</i>	<i>Day 1</i>		

RAW
1/10/2021
Govt. Polytechnic
Angul

Discipline CIVIL	Semester 5 th	Name of the Teaching Faculty : S. Pradhan
Subject (Theory)	No. of Days per Week Class Allotted	Semester From Date: 1/10/21 To Date: 31/1/22 No of Weeks 15
Week	Class Day	Practical Topics
		1.0 TESTS ON SOIL : (36 hrs)
1 st Week of Oct	1 st day	1.1 Determination of Specific gravity of Soil by Pycnometer /Density bottle.
2 nd Week	2 nd day	1.2 Determination of Field Density of Soil by Core Cutter Method.
2 nd Week	1 st day	1.3 Determination of Particle Size gradation of sand/Gravel by sieve analysis.
3 rd Week	2 nd day	1.4 Wet mechanical analysis using pipette method for clay and silt.
3 rd Week	1 st day	1.5 (a) Determination of Liquid Limit by soil by Casagrande's apparatus.
4 th Week	1 st day	(b) Determination of Plastic limit of soil.
	2 nd day	1.6 Determination of Shrinkage limit of soil.
1 st Week of Nov	1 st day	1.7 Determination of MDD & OMC of soil by using modified Proctor Test.
	2 nd day	1.8 Determination of CBR value using Laboratory CBR Testing device.
2 nd Week of Nov	1 st day	1.9 Determination of c and ϕ of soil by triaxial testing device.
	2 nd day	1.10 Determination of coefficient of permeability of soil by constant head method
		2.0 HYDRAULICS LABORATORY: (18 hrs)
2 nd Week of Nov	1 st day	2.1 Verification of Bernoulli's Theorem
3 rd Week of Nov	1 st day / 2 nd day	2.2 Determination of coefficient of Discharge of a rectangular notch fitted in open Channel.
1 st Week of Dec	1 st day	2.3 Determination of coefficient of Discharge of a Venturimeter, Orificemeter fitted in a pipe
	2 nd day	2.4 Determination of head Loss due to friction and coefficient of friction for flow through pipe.
		3.0 TRANSPORTATION LABORATORY: (18 hrs)
2 nd Week of Dec	1 st day	3.1 Penetration Test of Bitumen.
	2 nd day	3.2 Ductility Test of Bitumen.
3 rd Week of Dec	1 st day / 2 nd day	3.3 Viscosity Test of Bitumen.
4 th Week of Dec	1 st day / 2 nd day	3.4 Bitumen content by centrifuge extractor.
		4.0 PUBLIC HEALTH ENGINEERING LABORATORY: (18 hrs)
1 st Week of Jan	1 st day / 2 nd day	4.1 Determination of Turbidity of water Sample using Turbidimeter/Nephelometer/Jackson's Candle Turbidimeter.
2 nd Week of Jan	1 st day	4.2 Determination of pH of Water sample using (a) pH - meter (b) colour Comparator.
	2 nd day	4.3 Determination of Chloride content of a Water sample using method of titration.
3 rd Week of Jan	1 st day	4.4 Determination of Coagulant (Alum) dose requirement for a turbid water sample by Jar Test.
	1 st day	4.5 Determination of dissolved oxygen in a water sample.
	2 nd day	4.6 Determination of bacteriological quality of water sample by Coliform test

Principal
Govt. Polytechnic
Ranchi
11/10/2021

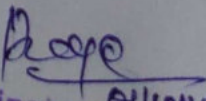
Shreyas Pradhan
(PTGE)

Discipline CIVIL	Semester 5 th	Name of the Teaching Faculty Preetam Nayak
PROJECT PHASE-3 Subject	4P/W No. of Days per Week Class Alloted	Semester From Date: 01/10/21 To Date: No of Weeks 15 31/01/22
Week	Class Day	Practical Topics
1 st Week of Oct		<input checked="" type="checkbox"/> Qualitative analysis of any one or more of the civil engineering materials by addition or alteration of one or more constituents to assess their suitability as construction materials
to		<input checked="" type="checkbox"/> Soil properties enhancement using different available materials.
1 st Week of Nov		<input checked="" type="checkbox"/> Development of Waste disposal system including e-waste.
to		<input checked="" type="checkbox"/> Application of different surveying techniques for solving real world problem.
1 st Week of Dec		<input checked="" type="checkbox"/> Analysis, design and/or estimation of civil engineering structures. Use of software for execution of projects may be encouraged
to		<input checked="" type="checkbox"/> Preparation of innovative structural models by use of materials having close resemblance to real life structures.
1 st Week of Jan		<input checked="" type="checkbox"/> Experimental investigation of behavior of structural elements.

Accept
 01/10/21
 Principal
 Govt. Polytechnic,
 KAWANGUL
 1/10/2021

Preetam Nayak
 (PTGIF)

Discipline CIVIL	Semester 5th	Name of the Teaching Faculty Preetam Nayak	
EP-II	No. of Days per Week Class Allotted 30/10	Semester From Date: 1/10/21	To Date: No of Weeks 31/01/22 15
Week	Class Day	Practical Topics	
1st Week of Oct to 8th Week of Jan		Detailed estimate from working drawings / standard drawings as mentioned at Sl. No. 1, 2, 3 & 4 of theory - 4 Estimation & Cost Evaluation - II) are to be taken in the practical classes using excel sheets. (Computer aided).	


 Principal
 Govt. Polytechnic
 Ankur
 1/10/21

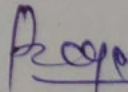
Preetam Nayak
 (PTGF)

LAND SURVEY - II (6th Sem) (5 P/week)

Discipline	Semester (6th)	Name of the Teaching Faculty Ashutosh Mahapatra	
CIVIL	No. of Days per (5 P/week)	Semester From Date: 10/3/2022	To Date: No of Weeks 10/08/2022
Subject	Week Class Alloted		
Week	Class Day	Theory Topics	
		1. TACHEOMETRY: (09 hrs)	
end week		(Only concepts; applications without derivation)	
Month		1.1 Principles, stadia constants determination	
3rd week		1.2 Stadia tacheometry with staff held vertical and with line of collimation horizontal or inclined, numerical problems	
4th week		1.3 Elevations and distances of staff stations – numerical problems	
		2. CURVES: (08 hrs)	
4th week		2.1 compound, reverse and transition curve, Purpose & use of different types of curves in field	
5th week		2.2 Elements of circular curves, numerical problems	
1st week		2.3 Preparation of curve table for setting out	
April		2.4 Setting out of circular curve by chain and tape and by instrument angular methods (i) offsets from long chord, (ii) successive bisection of arc, (iii) offsets from tangents, (iv) offsets from chord produced, (v) Rankine's method of tangent angles (No derivation)	
2nd week		2.5 Obstacles in curve ranging – point of intersection inaccessible	
3rd week		3. BASICS ON SCALE AND BASICS OF MAP: (08 hrs)	
or		3.1 Fractional or Ratio Scale, Linear Scale, Graphical Scale	
April		3.2 What is Map, Map Scale and Map Projections	
3rd week		3.3 How Maps Convey Location and Extent	
3rd week		3.4 How Maps Convey characteristics of features	
3rd week		3.5 How Maps Convey Spatial Relationship	
3rd week		3.5.1 Classification of Maps	
3rd week		3.5.1 Physical Map	
3rd week		3.5.2 Topographic Map	
4th weeks		3.5.3 Road Map	
4th weeks		3.5.4 Political Map	
4th weeks		3.5.5 Economic & Resources Map	
4th weeks		3.5.6 Thematic Map	
4th weeks		3.5.7 Climate Map	
4th week		4. SURVEY OF INDIA MAP SERIES: (08 hrs)	
or		4.1 Open Series map	
April		4.2 Defense Series Map	
4th week		4.3 Map Nomenclature	
4th weeks		4.3.1 Quadrangle Name	
4th weeks		4.3.2 Latitude, Longitude, UTM's	
4th weeks		4.3.4 Contour Lines	

5 th week		4.3.5 Magnetic Declination
5 th week		4.3.6 Public Land Survey System
5 th week		4.3.7 Field Notes
5 th week		5. BASICS OF AERIAL PHOTOGRAPHY, PHOTOGRAMMETRY, DEM AND ORTHO IMAGE GENERATION: (10 hrs)
or		5.1 Aerial Photography:
April		5.1.1 Film, Focal Length, Scale
5 th week		5.1.2 Types of Aerial Photographs (Oblique, Straight)
1 st week		5.2 Photogrammetry:
or May		5.2.1 Classification of Photogrammetry
1 st week		5.2.2 Aerial Photogrammetry
1 st week		5.2.3 Terrestrial Photogrammetry
1 st week		5.3 Photogrammetry Process:
1 st week		5.3.1 Acquisition of Imagery using aerial and satellite platform
1 st week		5.3.2 Control Survey
1 st week		5.3.3 Geometric Distortion in Imagery
2 nd week		Application of Imagery and its support data
2 nd week		Orientation and Triangulation
2 nd week		Stereoscopic Measurement
2 nd week		19.9.1 X-parallax
2 nd week		19.9.2 Y-parallax
		5.4 DTM/DEM Generation
2 nd week		
2 nd week		5.5 Ortho Image Generation
2 nd week		6. MODERN SURVEYING METHODS : (10 hrs)
or May		6.1 Principles, features and use of (i) Micro-optic theodolite, digital theodolite
2 nd week		6.2 Working principles of a Total Station (Set up and use of total station to measure angles, distances of points under survey from total station and the co-ordinates (X,Y & Z or northing, easting, and elevation) of surveyed points relative to Total Station position using trigonometry and triangulation.
3 rd week		7. BASICS ON GPS & DGPS AND ETS: (10 hrs)
or May		7.1 GPS: - Global Positioning
3 rd week		7.1.1 Working Principle of GPS, GPS Signals,
3 rd week		7.1.2 Errors of GPS, Positioning Methods
3 rd week		7.2 DGPS: - Differential Global Positioning System
4 th week		7.2.1 Base Station Setup
4 th week		7.2.2 Rover GPS Set up
4 th week		7.2.3 Download, Post-Process and Export GPS data
4 th week		7.2.4 Sequence to download GPS data from flashcards
4 th week		7.2.5 Sequence to Post-Process GPS data
5 th week		7.2.6 Sequence to export post process GPS data
5 th week		7.2.7 Sequence to export GPS Time tags to file
5 th week		7.3 ETS: - Electronic Total Station

1st week	7.3.1 Distance Measurement
2nd week	7.3.2 Angle Measurement
3rd week	7.3.3 Leveling
4th week	7.3.4 Determining position
5th week	7.3.5 Reference networks
6th week	7.3.6 Errors and Accuracy
	8. BASICS OF GIS AND MAP PREPARATION USING GIS (10 hrs)
1st week	8.1 Components of GIS, Integration of Spatial and Attribute Information
2nd week	8.2 Three Views of Information System
3rd week	8.2.1 Database or Table View, Map View and Model View
4th week	8.3 Spatial Data Model
5th week	8.4 Attribute Data Management and Metadata Concept
6th week	8.5 Prepare data and adding to Arc Map.
7th week	8.6 Organizing data as layers.
8th week	8.7 Editing the layers.
9th week	8.8 Switching to Layout View.
10th week	8.9 Change page orientation.
11th week	8.10 Removing Borders.
12th week	8.11 Adding and editing map information.
13th week	8.12 Finalize the map


 Principal 10/3/2022
 Govt. Polytechnic
 Rm Angul
 10/3/2022

Ashutosh
 Mahapatra
 (PTGF)

CONSTRUCTION MANAGEMENT (6th Sem)

(4 period/week)

Discipline CIVIL	Semester 6 th	Name of the Teaching Faculty Shravyas Pradhan
Subject	No. of Days per Week Class Allotted (6P/week)	Semester From Date: 10/3/2022 To Date: No of Weeks 10/06/2022
Week	Class Day	Theory Topics
2 nd week March		1. Introduction To Construction Management (04 hrs)
2 nd week		1.1 Aims and objectives of construction management.
2 nd week		1.2 Functions of construction management.
2 nd week		1.3 The construction team components- owner, engineer, architect, contractor-their functions and interrelationship and jurisdiction.
2 nd week		1.4 Resources for construction management- men, machines, materials, money
		2. Constructional Planning (07 hrs)
3 rd week		2.1 Importance of Construction Planning
or March		2.2 Developing work breakdown structure for construction work
3 rd week		2.3 Construction Planning stages-Pre-tender stage, Post-tender stage.
3 rd week		2.4 Construction scheduling by Bar charts-preparation of Bar Charts for simple construction works.
3 rd week		2.5 Preparation of schedules for labour materials, machinery, finance for small works
3 rd week		2.6 Limitation of Bar charts
3 rd week		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.
4 th week or April		3. Materials and Stores Management (04 hrs)
4 th week		3.1 Classification of Stores-storage of stock.
		3.2 Issue of materials-indent, invoice, bin card
4 th week		4. Construction Site Management (05 hrs)
4 th week		4.1 Job Lay out-Objectives, Review plans, specifications, Lay out of equipments.
4 th week		4.2 Location of equipment, organizing labour at site.
5 th week or April		4.3 Job lay out for different construction sites.
		4.4 Principle of storing material at site.
		5. Construction Organization: (06 hrs)
5 th week		5.1 Introduction – Characteristics, Structure, importance.
or April		5.2 Organization types-line and staff, functions and their characteristics

5 th week or April		5.3 Principles of organization- meaning and significance of terms- control, authority, responsibility, job & task.
5 th week		5.4 Leadership-necessity, styles of leadership, role of leader
5 th week		5.5 Human relations-relations with subordinates, peers, Supervisors, characteristics of group behavior, mob psychology, handling of grievances, absenteeism, labour welfare.
5 th week		5.6 Conflicts in organization-genesis of conflicts, types-intrapersonal, interpersonal, intergroup, resolving conflicts.
		6. Construction Labour and Labour Management: (06 hrs)
1 st week or May		6.1 Preparing Labour schedule
1 st week		6.2 Essential steps for optimum labour output
1 st week		6.3 Labour characteristics
1 st week		6.4 Wages & their payment
1 st week		6.5 Labour incentives
1 st week		6.6 Motivation- Classification of motives, different approaches to motivation.
2 nd week or May		7. Equipment Management (06 hrs)
2 nd week		7.1 Preparing the equipment schedule
2 nd week		7.2 Identification of different alternative equipment
2 nd week		7.3 Importance of Owning & operating costs in making decisions for hiring & purchase of equipment
2 nd week		7.4 Inspection and testing of equipment
2 nd week		7.5 Equipment maintenance
3 rd week or May		8. Quality Control (05 hrs)
3 rd week		8.1 Concept of quality in construction
		8.2 Quality Standards- during construction, after construction, destructive & non destructive methods.
4 th week or May		9. Monitoring Progress (06 hrs)
4 th week		9.1 Programme and progress of work
5 th week		9.2 Work study
		9.3 Analysis and control of physical and financial progress corrective measures.
3 rd week or June		10. Safety Management In Construction (05 hrs)
1 st week		10.1 Importance of safety
3 rd week		10.2 causes and effects of accidents in construction works
1 st week		10.3 Safety measures in worksites for excavation, scaffolding, formwork, fabrication and erection, demolition.
1 st week		10.4 Development of safety consciousness
1 st week		10.5 Safety legislation- Workman's compensation act, contract labour act.

2nd week		11. Role of Vulnerability Atlas of India in construction projects (D.B. Singh)
05 June		11.1 Introduction to Vulnerability Atlas of India, Concepts of natural hazards and disasters and vulnerability profile of India. Definition of disaster related terms.
2nd week		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.
2nd week		11.3 Wind / Cyclone hazard and vulnerability, wind speed and pressures, wind hazard and cyclone occurrence maps, storm surveys and cyclone resistant measures.
2nd week		11.4 Flood hazard and vulnerability, Flood hazard and Flood prone areas of the country, General protection of habitants and flood resistant construction.
2nd week		11.5 Landslides, Tsunamis and Thunderstorm hazards and vulnerability, Landslide & Thunderstorm incidence maps, Measures against Tsunami hazards.
2nd week		11.6 Housing vulnerability risk tables and usage of vulnerability atlas of India, Inclusion of vulnerability atlas in Tender documents.

A. Singh
 10/3/2022
 Principal
 Govt. Polytechnic
 R. V. Angul
 10/3/2022

Shreyas Pradhan

CONCRETE TECHNOLOGY

Discipline CIVIL	Semester 6 th	Name of the Teaching Faculty <u>Abinash Behera</u>	
CT	4 th week	Semester From Date:	To Date: No of Weeks
Subject	Week Class Alloted	10/03/2021	10/06/2022
Week	Class Day	Theory Topics	
2 nd week or March		1. Concrete as a construction material: 02 1.1 Grades of concrete. 1.2 Advantages and disadvantages of concrete.	
3 rd week or March		2. Cement: (04) 2.1 Composition, hydration of cement, water cement ratio and compressive strength, fineness of cement, setting time, soundness, types of cement.	
4 th week or March 5 th week		3. Aggregate, Water and Admixtures: (06) 3.1 Classification and characteristics of aggregate, fineness modulus, grading of aggregate, I.S.383 3.2 Quality of water for mixing and curing. 3.3 Important functions, classification of admixtures, I.S 9103, accelerating admixtures, retarding admixtures, water reducing admixtures, air containing admixtures	
1 st -2 nd week or April		4. Properties of fresh concrete: (06) 4.1 Concept of fresh concrete, workability, slump test, compacting factor test, V-bee consistency test and flow test, requirement of workability, I.S.1199.	
3 rd & 5 th week or April		5. Properties of hardened concrete: (07) 5.1 Cube and cylinder compressive strengths, flexural strength of concrete, stress-strain and elasticity, phenomena of creep and shrinkage, permeability, durability of concrete, sulphate, chloride and acid attack on concrete, efflorescence.	
1 st week or April 2 nd week or May		6. Concrete mix Design (05) 6.1 a) Introduction b) Data or input required for mix design. 6.2 Nominal mix concrete & design mix concrete. 6.3 Basic consideration for concrete mix design, Methods of proportioning concrete mix – I.S Code method of mix design (I.S.10262)	
3 rd week or May		7. Production of concrete: (06) 7.1 Batching of materials, mixing of concrete materials, transportation, placing of concrete, compaction of concrete (vibrators), Curing of concrete, Formwork-requirements and types, stripping of forms. (Concepts only)	

		8. Inspection and Quality Control of Concrete 661
4th & 5th		8.1 Quality control of Concrete as per I.S.456, Factors causing the variations in the quality of concrete
week		8.2 Mixing, Transporting, Placing & curing requirements of Concrete as per I.S.456.
or		
May		8.3 Inspection and Testing as per Clause 17 of IS:456.
		8.4 Durability requirements of Concrete as per I.S:456.
		9. Special Concrete 661
1st week		
or		9.1 Introduction to ready mix concrete, high performance concrete, silica fume concrete, shot-crete concrete or gunniting (Concepts only).
June		
2nd week		10. Deterioration of concrete and its prevention: (06)
or		10.1 Types of deterioration, prevention of concrete deterioration, corrosion of reinforcement, effects and prevention
June		

OR

K. L. N.
18/3/22

Praya
Principles
Govt. Polytechnic
Angul
D. N.
10/3/22

Discipline CIVIL	Semester 6 th	Name of the Teaching Faculty Abinash Behera
ACT&E	No. of Days per Week Class Alloted	Semester From Date: To Date: No of Weeks
Subject	Week 10/03/2022	10/06/2022
Week 4 th /w	Class Day	Theory Topics
		1. Advanced construction materials (10hrs)
2 nd week or Month		1.1 Fibers and Plastics- Types of fibers- Steel, Carbon, glass fibers, Use of fibers as construction material, properties of Fibers. Types of plastics- PVC, RPVC, HDPE, FRP, GRP etc. Colored plastic sheets. Use of plastic as construction material.
3 rd week		1.2 Artificial Timbers – Properties and uses of artificial timber. Types of artificial timber available in market, strength of artificial timber.
4 th week		1.3 Miscellaneous materials – Properties and uses of acoustics materials, wall claddings, plaster boards, micro-silica, artificial sand, bonding agents, adhesives etc.
		2. Prefabrication (08hrs)
4 th week or Month		2.1 Introduction, necessity and scope of prefabrication of buildings, history of prefabrication, current uses of prefabrication , types of prefabricated systems, classification of prefabrication, advantages and disadvantages of prefabrication,
5 th week		2.2 The theory and process of prefabrication, design principle of prefabricated systems, types of prefabricated elements, modular coordination
		2.3 Indian standard recommendation for modular planning.
1 st week or April		3. Earthquake Resistant Construction (08)
2 nd week		3.1 Building Configuration
3 rd week		3.2 Lateral Load resisting structures
3 rd week		3.3 Building characteristics
3 rd week		3.4 Effect of structural irregularities-vertical irregularities, plan configuration problems.
3 rd week		3.5 Safety consideration during additional construction and alteration of existing Buildings.
3 rd week		3.6 Additional strengthening measures in masonry building-corner reinforcement, lintel band, sill band, plinth band, roof band, gable band etc.
1 st week or May		4. Retrofitting of Structures (08)
2 nd week		4.1 Seismic retrofitting of reinforced concrete buildings :
week		4.2 -Sources of weakness in RC frame building
		4.3 -Classification of retrofitting techniques and their uses
		5. Building Services (08)

2nd week or May		5.1 Cold Water Distribution in high rise building, lay out of installation
2nd week or May		5.2 Hot water supply – General principles for central plants-layout
3rd week		5.3 Sanitation –soil and waste water installation in high rise buildings
or May		5.4 Electrical services – i) requirements in high rise buildings ii) Layout of wiring - types of wiring iii) Fuses and their types iv) Earthing and their uses
3rd week		5.5 Lighting – Requirement of lighting, Measurement of light intensity
3rd week		5.6 Ventilation - Methods of ventilation (Natural and artificial Systems of ventilation) problems on ventilation
3rd week		5.7 Mechanical Services- Lifts, Escalator, Elevators – types and uses.
4th week		6. Construction and earth moving equipments – (10)
4th week		6.1 Planning and selection of construction equipments
4th week		6.2 Study on earth moving equipments like drag line, tractor, bulldozer, Power shovel
4th week		6.3 Study and uses of compacting equipments like tamping rollers, Smooth wheel rollers, Pneumatic tired rollers and vibrating compactors
5th week		6.4 Owning and operating cost – problems
1st week or June		7. Soil reinforcing techniques (08)
2nd week or June		7.1 Necessity of soil reinforcing.
		7.2 Use wire mesh and geo-synthetics.
		7.3 Strengthening of embankments, Slope stabilization in cutting and embankments by soil reinforcing techniques

CL

Ran
10/3/2022

Principal
10/3/2022

Govt. Polytechnic
Angul

Rep
10/3/22

Discipline CIVIL	Semester 6 th	Name of the Teaching Faculty Asutosh Mohapatra
LSP-II	No. of Days per Week Class Alloted 5P/W	Semester From Date: 19/03/22 To Date: 10/06/22 No of Weeks 15
Subjt	Week	Class Day
		Practical Topics
MARCH		
2 nd week		1.0 TRIGONOMETRICAL SURVEYING & TACHEOMETRY: (10hrs)
3 rd week	Day-1/Day-2	1.1 Determination of height of 3 objects whose bases are accessible.
	Day-1	1.2 Determination of stadia constants.
	Day-2	1.3 Determination of horizontal distance and elevation with Staff vertical, by stadia method.
MARCH		
		2.0 SETTING OUT CURVES AND SITE SURVEYING: (10hrs)
4 th week	Day-1	2.1 Setting out a simple circular curve by offsets from long chord.
	Day-2	2.2 Setting out a simple circular curve by offsets from the tangent.
APRIL		
1 st week	Day-1	2.3 Setting out a simple circular curve by offsets from chords produces.
	Day-1	2.4 Setting out a simple circular curve by Rankine's method of tangent angle (Deflection angles)
	Day-1	Setting out a site the center line and foundation width of a building from the given plan.
	Day-2	2.5 Setting out the foundation line for a culvert.
	Day-2	2.6 Dividing an area into plots of given size
APRIL		
2 nd week	Day-1	3. STUDY OF MAP AND MAP SERIES: (10hrs)
	Day-1	3.1 Physical Map
	Day-2	3.2 Topographic Map
APRIL	Day-2	3.3 Road Map
3 rd week	Day-1	3.4 Political Map
	Day-1	3.5 Economic & Resources Map
	Day-2	3.6 Thematic Map
	Day-2	3.7 Climate Map
	Day-2	3.8 Open Series map and Defense Series Map.
APRIL		
4 th week	Day-1	4. STUDY ON GPS & DGPS AND ETS: (25hrs)
	Day-2	4.1 GPS: - Global Positioning, GPS Signals, Errors of GPS, Positioning Methods.
ADAY	Day-1	4.2 DGPS: - Differential Global Positioning System
1 st week	Day-1	4.2.1 Base Station Setup
	Day-2	4.2.2 Rover GPS Set up
	Day-2	4.2.3 Download, Post-Process and Export GPS data
2 nd week	Day-1	4.2.4 Sequence to download GPS data from flashcards
	Day-1	4.2.5 Sequence to Post-Process GPS data
	Day-2	4.2.6 Sequence to export post process GPS data
	Day-2	4.2.7 Sequence to export GPS Time tags to file
3 rd week	Day-1	4.3 ETS: - Electronic Total Station
	Day-1	4.3.1 Distance Measurement
	Day-1	4.3.2 Angle Measurement
	Day-1	4.3.3 Leveling

	Day-2	4.3.4 Determining position
	Day-2	4.3.5 Reference networks
	Day-2	4.3.6 Errors and Accuracy
MAY		5. STUDY OF GIS AND MAP PREPARATION USING GIS (20 hrs)
4 th Week	Day-1	5.1 Components of GIS, Integration of Spatial and Attribute Information.
	Day-1	5.2 Three Views of Information System.
	Day-2	5.2.1 Database or Table View, Map View and Model View.
JUNE	Day-2	5.3 Spatial Data Model.
1 st Week	Day-1	5.4 Attribute Data Management and Metadata Concept.
	Day-1	5.5 Prepare data and adding to Arc Map.
	Day-2	5.6 Organizing data as layers.
	Day-2	5.7 Editing the layers.
2 nd Week	Day-1	5.8 Switching to Layout View.
	Day-2	5.9 Change page orientation.
3 rd	Day-2	5.10 Removing Borders.
	Day-2	5.11 Adding and editing map information.
	Day-2	5.12 Finalize the map.

Handwritten signature
10/3/22

Handwritten signature

Handwritten signature
Principal
Govt. Polytechnic
Angul
Handwritten signature
10/02/22

Ashutosh
Mahapatra
(PTGF)

Discipline CIVIL	Semester 6 th	Name of the Teaching Faculty Abinash Behera	
CWP & MS Project	No. of Days per Week Class Allotted 5/10	Semester From Date: 10/03/22	To Date: No of Weeks 15 10/06/22
Subject	Week	Class Day	Practical Topics
PART I: Construction work Practices (40 hrs)			
MARCH	2 nd Week	Day-1	1. Study of tools required for construction of masonry.
		Day-2	2. Lay out Plan of a building.
3 rd Week	Day-1		3. Construction of 1 & 1 1/2 Brick thick walls in English Bond in Mud mortar including a corner.
		Day-2	4. Construction of 1 & 1 1/2 Brick thick Pillar in Mud mortar.
4 th Week	Day-1		5. Bar bending and fabrication of reinforcements for a beam.
		Day-2	6. Bar bending and fabrication of reinforcements for a slab.
APRIL	Day-1		7. Bar bending and fabrication of reinforcements for a lintel with chajja.
1 st Week	Day-2		8. Bar bending and fabrication of reinforcements for a column.
APRIL	2 nd Week	Day-1	9. Conducting a Non destructive compressive strength test on concrete beam using rebound Hammer as per I.S:1311(Part-2)-1992.
APRIL	2 nd Week	Day-1 / Day-2	10. Study of pipe joints and plumbing fixtures.
		Day-2	11. Field visits:
			Visit to construction site of a building where the following works are in progress:
			Excavation of foundation, b) Masonry works, c) Plumbing works d) Painting (interior/ exterior), e) Wood works, f) Fabrication & concreting works, g) Flooring.
PART II: MS Project (35 hrs)			
APRIL	3 rd Week	Day-1	1. Introduction to Microsoft Project
		Day-2	1.1 Project Management-Definition & concept
4 th Week	Day-1		1.2 Features of Microsoft project
		Day-2	1.3 MS Project scheduling for engineering
MAY	1 st Week	Day-1	2. Creating a project plan
		Day-2	2.1 Basic information for a new project
2 nd Week	Day-1 / Day-2		2.2 Creating project from a blank
2 nd Week	Day-1 / Day-2		2.3 Creating project from existing
MAY			3. Basics of Microsoft Project
4 th Week	Day-1		3.1 Establishing a project
		Day-2	3.2 Project task
June	Day-1		3.3 Project resources
1 st Week	Day-2		4. Tracking the project progress
June	Day-1		5. Project reporting
2 nd Week	Day-2		6. Custom views and field

Printed by Abinash Behera
 Govt. Polytechnic
 ANQUI
 (PTGF)

Discipline <u>LIFE SKILL</u>	Semester <u>6/K</u>	Name of the Teaching Faculty <u>Abinash Behera</u>
Subject <u>LIFE SKILL</u>	No. of Days per <u>2D/W</u> Week Class Alloted	Semester From Date: <u>10/03/22</u> To Date: <u>10/06/22</u> No of Weeks <u>15</u>
Week	Class Day	Practical Topics <u>LIFE SKILL</u>
<u>MARCH</u>		
→ <u>1st Week</u>	<u>Day-1</u>	1. SOCIAL SKILL Society, Social Structure, Develop Sympathy and Empathy Swot Analysis – Concept, How to make use of SWOT
	<u>Day-2</u>	Inter personal Relation: Sources of conflict, Resolution of conflict, Ways to enhance interpersonal relation
→ <u>2nd Week</u>	<u>Day-1</u>	2. PROBLEM SOLVING Steps of Problem solving: <input checked="" type="checkbox"/> Identify and clarify the problem, <input checked="" type="checkbox"/> Information gathering related to problem,
	<u>Day-2</u>	<input checked="" type="checkbox"/> Evaluate the evidence, <input checked="" type="checkbox"/> Consider alternative solutions and their implications,
→ <u>3rd Week</u>	<u>Day-1</u>	<input checked="" type="checkbox"/> Choose and implement the best alternative, <input checked="" type="checkbox"/> Review <input checked="" type="checkbox"/> Problem solving techniques:
	<u>Day-2</u>	1) Trial and error, 2) Brain storming, 3) Lateral (Out of Box) thinking
→ <u>4th Week</u>	<u>Day-1</u>	3. PRESENTATION SKILL Body language, Dress like the audience Posture, Gestures, Eye contact and facial expression. STAGE FRIGHT,
	<u>Day-2</u>	Voice and language – Volume, Pitch, Inflection, Speed, Pause Pronunciation, Articulation, Language, Practice of speech. Use of AV aids such as Laptop with LCD projector, white board etc.
→ <u>5th Week</u>	<u>Day-1</u>	4. GROUP DISCUSSION AND INTERVIEW TECHNIQUES Group Discussion: Introduction to group discussion, Ways to carry out group discussion,
	<u>Day-2</u>	Parameters— Contact, body language, analytical and logical thinking, decision making
→ <u>6th Week</u>	<u>Day-1</u>	Interview Technique : Dress, Posture, Gestures, facial expression, Approach
	<u>Day-2</u>	Tips for handling common questions.
→ <u>7th Week</u>	<u>Day-1</u>	5. WORKING IN TEAM Understand and work within the dynamics of a groups. Tips to work effectively in teams,

→	MAY	Day-2	Establish good rapport, interest with others and work effectively with them
	1st week	Day-1	to meet common objectives,
			Tips to provide and accept feedback in a constructive and considerate way ,
			Leadership in teams, Handling frustrations in group.
		Day-2	6. TASK MANAGEMENT
			Introduction, Task identification, Task planning ,
			organizing and execution, Closing the task
→	2nd week		PRACTICAL
		Day-1	List of Assignment: (Any Five to be performed including Mock Interview)
			a. SWOT analysis:-
			Analyse yourself with respect to your strength and weaknesses, opportunities and threats. Following points will be useful for doing SWOT.
		Day-2	a) Your past experiences,
			b) Achievements,
			c) Failures,
			d) Feedback from others etc.
			b. Solve the True life problem assigned by the Teacher.
→	3rd week	Day-1	3. Working in a Team
		Day-2	Form a group of 5-10 students and do a work for social cause e.g. tree plantation, blood donation, environment protection, camps on awareness like importance of cleanliness in slum area, social activities like giving cloths to poor etc. (One activity per group where Team work shall be exhibited)
→	4th week		4. Mock Interview
		Day-1	5. Discuss a topic in a group and prepare minutes of discussion.
			6. Deliver a seminar for 5 minutes using presentation aids on the topic given by your teacher.
			7. Task Management
		Day-2	Decide any task to be completed in a stipulated time with the help of teacher. Write a report considering various steps in task management (with Break up into sub tasks and their interdependencies and Time)
→	JUNE		Note: -1. Please note that these are the suggested assignments on given contents/topic. These assignments are the guide lines to the subject teachers. However the subject teachers are free to design any assignment relevant to the topic.
	1st week	Day-1	
			Note: -2. The following Topics may be considered for Seminar/GD in addition to other Topics at the discretion of the Teacher.
→		Day-2	(Comparison with developed countries, Occupational Safety, Health Hazard, Accident & Safety, First-Aid, Traffic Rules, Global Warming, Pollution, Environment, Labour Welfare Legislation, Labour Welfare Acts, Child Labour Issues, Gender Sensitisation ,Harassment of Women at Workplace)

cil
 Proje
 Principal
 Govt Polytechnic
 Angul
 Refd
 10/01/22

R. K. Das
 10/01/2022

* Abinash Behera
 (PTGF)

Discipline CIVIL	Semester 6 th	Name of the Teaching Faculty R. Gadagale
Subject CADD lab & design & detailing	No. of Days per Week 3/4 Class Alloted	Semester From Date: 10/03/22 To Date: 10/06/22 No of Weeks 15
Week	Class Day	Practical Topics
MARCH		CADD lab & design & detailing practice - (6 th sem)
→ 2 nd Week	Day-1	1.0 Structural Detailing Practice: 20 hrs
→ 3 rd Week	Day-1	Draw the following with necessary details and schedule of bars from supplied sketches or given references such as SP 34
→ 4 th Week	Day-1	1.1 Slab, beam and lintel with chajja as in a simple building (Help from Sections 8 & 9 of SP 34 may be taken) (Plate 1)
APRIL		
1 st Week	Day-1	1.2 Columns, column-beam connections with & without splicing, isolated footing, staircase (Help from sections 6, 7, 10 of SP 34 may be taken)(Plate 2)
→ 2 nd Week	Day-1	1.3 Different types of bolt connections, welded connections. (Plate 3)
→ 3 rd Week	Day-1	1.4 Details of Pile and Pile cap
APRIL		
→ 4 th Week	Day-1	2.0 Use of STADD Pro Software: (15 hrs)
→ MAY		
1 st Week	Day-1	2.1 2-D Modelling of structures, Use of Structure wizard, Geometry, Property, Support, Loads and combinations, Analysis
→ 2 nd Week	Day-1	2.2 Analysis of a Continuous beam with more than two span subjected to udl and point load
→ 3 rd Week	Day-1	2.3 3-D modeling of building structures ,dead load, live load, earthquake and wind load analysis, design of a 3 storeyed building and preparation of reinforcement drawing and detailing
→ 4 th Week	Day-1	2.4 Introduction to STADD foundation.
MAY		
→ 4 th Week	Day-1	3.0 Revit Architecture Software: (10 hrs)
→ June		
1 st Week	Day-1	3.1 Basics- Modify, Wall, Door, Window, Component Room, Roof, Floor, Grid, Lines, Dimension, Section, Level, Text, View
→ 2 nd Week	Day-1	3.2 Modelling- Ramp, Railing, Stair
→ 3 rd Week	Day-1	3.3 Site- Topo surface- Parking Component, Site Component
→ 4 th Week	Day-1	3.4 Align, Split, Trim, offset, Match type, Line work, Paint, Scale, Unit
→ 5 th Week	Day-1	3.5 3D View
→ 6 th Week	Day-1	3.6 Preparation of approval drawing of a double storied residential building from given specifications with its 3D view using above commands

R. Gadagale
10/31/2022

R. Gadagale
Principal

Govt. Polytechnic
Angul

10/03/22