MITS SCHOOL OF ENGINEERING,BHUBANESWAR
CIVIL ENGINEERING DEPARTMENT

Lesson Plan

NAME OF THE SUBJECT :S.M.T.H **SEMESTER : 3RD**
NAME OF THEFACULTY :MISS SIMUN PRIYADARSHINI

Lect no.	Topic plan to be covered , Resistivity, factors affecting resistivity	Chapter as per syllabus	Reference book/Chapter/Page no
❖	**Introduction**	CH-1	Strength of Material (R.Subhramanian)
L-1	Basic principle of Mechanics : Force ,Moment, Support condition		
L-2	Condition of equilibrium,C.G& MI		
L-3	Review of CG and MI of different section		
❖	**Simple and Complex stress strain**	CH-2	Strength of Material (R.Subhramanian)
L-4	Introduction to stresses and strains :Mechanical properties of material		
L-5	Creep,Fatigue,Tenacity,Durability,Types of stresses		
L-6	Complimentary shear stress- Diagonal tensile /Compressive stresses due to shear,		
L-7	Ontraction, longitudinal and lateral starin,		
L-8	Poisson's ratio, Volumetric strain , Computation of stress & strain,		
L-9	Poisson's ratio, Change in dimensions and volume etc.		
L-10	Hooke's law-Elastic constants, Derivation of relationship		
L-11	Hooke's law-Elastic constants,		
L-12	Derivation of relationship beteen the elastic contraction.		
❖	**Application of simple stress and strain in engineering field:**	CH-3	Strength of Material (R.Subhramanian)
L-13	Behaviour of ductile and brittle materials under direct loads		
L-14	Stress strain curve of a ductile material.Limitfo proportionality		
L-15	Elastic limit,Yield stress ,Ultimate stress ,Breaking stress, percentage elongation		
L-16	Percentage reduction in area,Significance of percentage elongatation		
L-17	Deformation of prismatic bars due to uniaxial load , Deformation of prismatic bars.		
❖	**Complex stress and strain**	CH-4	Strength of Material (R.Subhramanian)
L-18	Principal stresses and strain :Occurrence of normal and		
L-19	tangential stresses ,concept of stresses and planes.		
L-20	Major and minor principal stresses and their orientation,		
L-21	Mohr's Circle and its application to solve problems of complex stresses.		
❖	**Stresses In Beams and Shafts**		
L-22	Stresses in beams due to bending: -Theory of simple bending-Assumption		
L-23	Moment of resistance-Equation for Flexure-Flexure stress distribution		
L-24	Curvature of beam-Position of N.A		
L-25	Centroidal axis Flexural rigidity-Significance of section modulus		
❖	**Shear Stresses in beams, Stresses in shaft due to torsion**	CH-5	Strength of Material (R.Subhramanian)
L-26	Shear stress distribution in beam of rectangular		
L-27	Circular and standard section symmetrical about vertical axis		
L-28	Concept of torsion,basic assumption of pure torsion		
L-29	Torsion of solid and hollow circular section		
L-30	Polar moment of inertia, torsional shearing stresses		
L-31	Angle of twist, torsional rigidity, equation of torsion		
❖	**Combined bending and direct stresses**	CH-6	Strength of Material (R.Subhramanian)
L-32	Combination of stresses ,Combined direct and bending stresses		
L-33	Maximum and minimum stresses in section,Condition for no tension		
L-34	Limit of eccentricity,Middle third/fourth rule		
L-35	Core or kem for square,Rectangular and circular section		

L-36	Chimney,dams and retaining wall		
	❖ **Columns and Strust**	**CH-7**	**Strength of Material (R.Subhramanian)**
L-37	Columns and Strust:Definition,Short and Long columns,End conditions		
L-38	Equivalent length / Effective length, Slendemessratio		
L-39	Axially loaded short and long column ,Euler's theory of long columns		
L-40	Critical load for columns with different end conditions		
L-41	Shear force and Bending moment		
	❖ **Types of load and beams**	**CH-8**	**Strength of Material (R.Subhramanian)**
L-42	Types of Loads:Concentrated or point load,		
L-43	Uniformly Distributed load(ULD)		
L-44	Types of support:Simplesupport,Rollersupport,Hingedsupport,Fix support		
L-45	Types of Reaction:Vertical reaction , Horizontal Reaction , Moment reaction		
L-46	Types of beam based on support condition:Calculation		
	❖ **Shear force and bending moment**	**CH-9**	**Strength of Material (R.Subhramanian)**
L-47	Shear force and bending moment :Sings convention S.F and B.M,S.F and B.M		
L-48	S.F and B.M diagram for Cantilever		
L-49	Simply supported beams and over hanging beams		
L-50	Position of maximum Bending moment		
L-51	Point if contra flexure		
L-52	Relation b/w intensity of load		
L-53	S.F and B.M		
	❖ **Slop and deflection**	**CH-10**	**Strength of Material (R.Subhramanian)**
L-54	Introduction: Shape and nature of elastic curve (		
L-55	Relationship b/n slope		
L-56	Deflection and curvature(No derivation)		
L-57	Important of slop and deflection		
L-58	Slop and deflection of cantilever		
L-59	simply supported beams under concentrated and		
	❖ **Indeterminate Beams, Trusses**	**CH-11**	**Strength of Material (R.Subhramanian)**
L-61	Indeterminacy in beams,		
L-62	Principle of consistent deformation/compatibility		
L-63	Analysis of propped cantilever		
L-64	Fixed and two span continuous beam by principle af superposition		
L-65	SF and BM diagram (point load and udl covering full span)		
L-66	Introduction: Types of trusses , Statically determinate trusses,		
L-67	Statically ieterminate trusses, Degree of indeterminacy, Stable and unstable truss,		

MITS SCHOOL OF ENGINEERING,BHUBANESWAR
CIVIL ENGINEERING DEPARTMENT

Lesson Plan

NAME OF THE SUBJECT :GEOTECHNICAL ENGG. **SEMESTER:3RD**
NAME OF THE FACUILTY : ER. SIMUN PRIYADARSHINI

Lect No	Topics Plan to be Covered Resistivity, factors affecting resistivity	Chapter as per syllabus	Reference books/Chapter/Page No.
❖	**Introduction**	**CH-1**	**Soil Mechanics& Foundation Engg (Dr. K.R Arora) (3-12)**
L-01	Soil and SoilEngineering,		
L-02	Scope of Soil Mechanics		
L-03	Origin and formation of soil,		
L-04	Assignments and discussion		
❖	**Preliminary Definitions and Relationship**	**CH-2**	**Soil Mechanics & Foundation Engg (Dr. K.R Arora) (13-44)**
L-05	Soil as a three Phase system, Water Content, Density,		
L-06	Specific gravity, Voids ratio, Porosity		
L-07	Percentage of air voids, air content, degree of saturation,		
L-08	Unit Test		
L-09	density Index ,Bulk/Saturated/dry/submerged density		
L-10	Interrelationship of various soil parameters, Relationship		
L-11	Assignments and discussion		
L-12	Unit test		
❖	**Index Properties of Soil**	**CH- 3**	**Soil Mechanics & Foundation Engg (Dr. K.R Arora) (45-88)**
L-13	Water Content, SpecificGravity,		
L-14	Particle size distribution ,Sieve analysis, wet mechanical analysis, Particle		
L-15	Consistency of Soils, Atterberg's Limits, Plasticity Index, Consistency		
L-16	Assignments and discussion		
L-17	Unit Test		**Soil Mechanics & Foundation Engg**
❖	**Classification of Soil**		
L-18	General, I.S. Classification,		
L-19	Plasticitychart, Group discussion		
L-20	Unit Test		
❖	**Permeability and Seepage**	**CH-5**	**Soil Mechanics & Foundation Engg (Dr. K.R Arora) (134-162)**
L-21	Concept of Permeability, Darcy's Law,		
L-22	Co-efficient ofPermeability ,Factors affecting Permeability.		
L-23	Constant head permeability and falling head permeabilityTest		
L-24	Seepage pressure, effective stress, phenomenon of quicksand		
L-25	Assignments and discussion		
L-26	Unit Test		
❖	**Compaction and Consolidation**		
L-27	Compaction: Compaction, Light and heavy compaction Test	**CH-6**	**Soil Mechanics & Foundation Engg (Dr. K.R Arora) (256-305) (357-375)**
L-28	Optimum Moisture, Content of Soil, Maximum dry density, Zero air void line		
L-29	Field compaction methods and their suitability		
L-30	Consolidation: DEFINATION OF CONSOLIDATION,		
L-31	Unit Test		
L-31	Distinction between compaction and consolidation.		
L-32	Terzaghi's model analogy of compression,		

L-33	Springs showing the process of consolidation – field implications		
L-34	Assignments and discussion		
L-35	Unit Test		
❖	**Shear Strength**	**CH-7**	**Soil Mechanics & Foundation Engg (Dr. K.R Arora) (306-356)**
L-36	Concept of shear strength		
L-37	Mohr- Coulomb failure theory,		
L-38	Cohesion, Angle of internal friction		
L-39	strength envelope for different type of soil		
L-40	Measurement of shear strength		
L-42	Direct shear test, triaxialshear test,		
L-43	unconfined compression test and vane-shear test		
L-44	Unit Test		
❖	**Earth Pressure on Retaining Structures**	**CH-8**	**Soil Mechanics& Foundation Engg (Dr. K.R Arora) (478-516)**
L-45	Active Earth pressure, Passive earth pressure,Earth pressureat rest.		
L-46	Use of Rankine's formula for the following cases (cohesion-less soilonly)		
L-47	(i) Backfill with no surcharge, (ii) backfill with uniform surcharge		
L-48	Assignments and discussion		
L-49	Unit Test		
❖	**Foundation Engineering**		
L-50	Functions of foundations, shallow and deep foundation		
L-51	different type of shallow and deep foundations with sketches.	**CH-9**	**Soil Mechanics & Foundation Engg (Dr. K.R Arora) (587-772)**
L-52	Bearing capacity of soil,		
L-53	bearing capacity of soils using Terzaghi's formulae & IS Code formulae for strip		
L-54	Types of failure : (General shear, Local shear, & Punching shear)		
L-55	Circular and square footings		
L-56	Effect Water table on bearing capacity of soil		
L-57	Plate load test and standard Penetration test		
L-58	Class unit test & discussion		
L-59	Class unit test & discussion		
L-60	Class unit test & discussion		

MITS SCHOOL OF ENGINEERING,BHUBANESWAR
CIVIL ENGINEERING DEPARTMENT
LESSON PLAN

NAME OF THE SUBJECT : BMCT **SEMESTER :3RD**

NAME OF THEFACULTY : ER. PRAGYAN P. MAHAPATRA

LECT NO	TOP PLAN TO BE COVERED RESISTIVITY, FACTORS AFFECTING RESISTIVITY	CHAPTER AS PER SYLLABUS	REFERENCE BOOK/CHAPTER/PAGE NO
➢ **PART(A)-CONSTRUCTION MATERIAL** **STONE & BRICK**			
L-01	Classification of rock,	**CH-1**	**BUILDING MATERIAL (RANGWALA)**
L-02	Qualities of good building stone		
L-03	Dressing of stone		
L-04	Characteristics of different		
L-05	Brick Earth-its composition		
L-06	Brick making-Preparation,Moulding,Drying,Burning		
L-07	Classification of brick, Size of traditional brick		
L-08	Modular brick ,Qualities of good building brick		
➢ **CEMENT ,MOTAR,CONCRETE**		**CH-2**	**BUILDING MATERIAL (RANGWALA)**
L-09	Types of cement,Properties of cement,		
L-10	Importance and application.		
L-11	Motar definition and types of motar,		
L-12	Sources and classification of sand ,Bulking of sand		
L-13	Use of gravel,morum & fly ash		
L-14	Concrete:Definition & composition-wcr workability.		
L-15	Mechanical properties & grading of aggregate.		
L-16	Mixing,Placing,Comoacting and xuring of concrete		
L-17	Manufacturing of cement		
➢ **Other Construction Material & SURFACE PROTECTIVE MATERIAL**		**CH-3**	**BUILDING MATERIAL (RANGWALA)**
L-18	Timber :Classification & Structure of timber		
L-19	Seasoning of timber-Importance,		
L-20	Properties & uses of refractory material-		
L-21	Tilles,terracotta,porcelain glazing		
L-22	Composition of paints,enamels,varnishes		
L-23	Types and uses of surface protective materials		
L-24	Characteristics		
➢ **PART(B)-CONSTRUCTION TECHNOLOGY** **INTRODUCTION**		**CH-5**	**BUILDING CONSTRUCTION TECHNOLOGY (RANGWALA)**
L-26	Buildings and classification		
L-27	Defferent components of a builing		
L-28	Site investigation-objective,site,reconnaisation		
L-29	Foundation		
L-30	Concept of foundation and purpose		
L-31	Types of foundation-Shallow and deep		
L-32	Shallow foundation-constructional details of :spread foundation for wall		

➢ **DOOR,WINDOWS AND LINTELS**			
L-34	Glossary of terms used in doors and windows	**CH-7**	**BUILDING CONSTRUCTION TECHNOLOGY (RANGWALA)**
L-35	Windows-different types Of windows		
L-36	Door-different type of doors,		
L-37	Purpose of use of arches and lintels.		
➢ **FLOOR, ROOFS AND STAIRS**		**CH-8**	**BUILDING CONSTRUCTION TECHNOLOGY (RANGWALA)**
L-38	Floor: Glossary of terms , types of floor finishes-cast-in-situ,concrete		
L-39	Roo glossary of terms , type of roofs, concept and function		
L-40	Stairs : Glossary of terms : Stair case, winder , landing, stringer		
L-41	Rise, tread,width of stair case,handrail,headroom.mumty room,		
L-42	Various types of stair case-straight flight,dog legged,		
➢ **Protective, Decorative Finishes,Damp and termite proofing**			
L-43	Plastering-purpose		
L-44	Types of plastering		
L-45	Type of plastering finishes	**CH-9**	**BUILDING CONSTRUCTION TECHNOLOGY (RANGWALA)**
L-46	Grit finsh , rough cast, smooth cast, sandfaced		
L-47	Proportion of mortars used for different plasters		
L-48	Preparation of mortars		
L-49	Techniques of plastering and curing		
L-50	Pointing-purpose		
L-51	Types of pointing, Painting-objectives		
L-52	Method of painting new and old wall surfaces		
L-53	wood surface and metal surface, powder coating and spray		
L-54	White washing-Colour washing		
L-55	Distempering-internal and external walls		
➢ **Green Buildings, Energy Management and Energy**		**CH-10**	**BUILDING CONSTRUCTION TECHNOLOGY (RANGWALA)**
L-56	Concept of green building		
L-57	Introduction to Energy Management and Energy Audit of Buildings		
L-58	Aims of energy management of buildings.		
L-59	Types of energy audit, Response energy audit questionnaire		
L-59	Energy surveying and audit report.		
L-60	UNIT TEST		

MITS SCHOOL OF ENGINEERING,BHUBANESWAR

CIVIL ENGINEERING DEPARTMENT

Lesson Plan

NAME OF SUBJECT :ESTIMATION& COST EVALUATION-I **SEMESTER**: 3rdSem(Civil)
NAME OF FACUILTY : ER. PRAGYAN P. MAHAPATRA

Lect No.	Topics Plan to be Covered Resistivity, factors affecting resistivity	Chapter as per syllabus	Reference books/Chapter/Page No.
❖	**INTRODUCTION**	**CH-1**	**ESTIMATING, COSTING, SPECIFICATION &VALUATION IN CIVIL ENGINEERING. (M. CHAKRABORTY.)** **PAGE NO : 2-14**
L-01	Defination of Estimate		
L-02	Types of estimates		
L-03	Plinth area, floor area / carpet area		
L-04	Caculation of building Estimate		
L-05	Units and modes of measurements as per IS 1200		
L-06	Footing estimate		
L-07	Accuracy of measurement for different item of work		
L-08	Numerical problems		
L-09	Assignment and discussion		
L-10	Numerical problems		
L-11	Numerical problems		
L-12	Assignment and discussion		
L-13	Numerical problems		
❖	**QUALITY ESTIMATE , DETAILED ESTIMATE, REVIESED ESTIMATE**		
L-14	Short wall long wall method and centre line method	**CH- 2**	**ESTIMATING, COSTING, SPECIFICATION &VALUATION IN CIVIL ENGINEERING. (M.CHAKRABORTY.)** **PAGE NO : 15- 31**
L-15	Deductions in masonry, plastering, white washing, painting		
L-16	Multiplying factor		
L-17	Paint coefficients for painting of doors and windows		
L-18	Detailed estimate of single storied flat roof		
L-19	building with shallow foundation		
L-20	RCC roof slab with leak proof treatment		
L-21	Numerical problems		
L-22	Assignment and discussion		
L-23	Numerical problems		
L-24	Assignment and discussion		
L-25	Unitb test		
L-26	Unitb test		
❖	**ANALYSIS OF RATES FOR CEMENT CONCRETE**	**CH-3**	**ESTIMATING, COSTING, SPECIFICATION &VALUATION IN CIVIL ENGINEERING. (M.CHAKRABORTY.)** **PAGE NO : 473-528**
L-27	Brick masonry in Cement Mortar		
L-28	laterite stone masonry in Cement Mortar		
L-29	Cement plaster, white washing		
L-29	Artificial Stone flooring		
L-30	Tile flooring, concrete flooring		
L-31	R.C.C. with centering and shuttering		
L-32	Calculation of lead, lift, conveyance charges		
L-33	Royalty of materials		
L-34	As per Orissa P.W.D. system		
L-35	R.C.C. with centering and shuttering		

L-36	Calculation of lead, lift, conveyance charges		
L-37	Royalty of materials As per Orissa P.W.D. system		
L-38	R.C.C. with centering and shuttering,		
L-39	Royalty of materials , Abstract of cost of estimate.		
L-40	As per Orissa P.W.D. system (Concept of C.P.W.D./Railways		
L-41	Valuation- Value and cost, scrap value, salvage value,	**CH-3**	**ESTIMATING, COSTING, SPECIFICATION &VALUATION IN CIVIL ENGINEERING. (M.CHAKRABORTY.)** **PAGE NO : 473-528**
L-42	Assessed value, sinking fund,.		
L-43	Depreciation and obsolesce, methods of valuation		
L-44	Calculation of lead, lift, conveyance charges		
L-45	Abstract of cost of estimate.		
L-46	Numerical problems		
L-47	Assignment and discussion		
L-48	Numerical problems		
L-49	Assignment and discussion		
L-50	Unitb test		
L-51	Unitb test		
L-52	Numerical problems		
ADMINISTRATIVE SET-UP OF ENGINEERING OF ENGINEERING ORGANISATIONS		**CH-4**	**ESTIMATING, COSTING, SPECIFICATION &VALUATION IN CIVIL ENGINEERING. (M.CHAKRABORTY.)** **PAGE NO : 729-808**
L-53	obsolesce, methods of valuation., sinking fund, depreciation and		
L-54	Valuation- Value , Cost, scrap value, Salvage value, assessed value		
L-55	Hierarchy of Engineering department in State Govt./Central Govt./PSUs/Private Sectors etc.		
L-56	Duties and responsibilities of Engineers at different positions		
L-57	Numerical problems		
L-58	Numerical problems		
L-59	Numerical problems		
L-60	Numerical problems		

MITS SCHOOL OF ENGINEERING,BHUBANESWAR
CIVIL ENGINEERING DEPARTMENT

Lesson Plan

NAME OF THE FACULTY:- MRS.ANIMA SAHOO **SEM: 3RD**

SUBJECT: - ENVIRONMENTAL STUDIES

Lect no	Topic to be Covered	Chapter as Syllabus	Reference book
	The multidisciplinary structure of Environment	**CH:1**	**CONCEPTS IN ENVIRONMENTAL STUDIES, D.D. MISHRA, S.CHAND PAGE 5 - 35**
L-1	Definition and scope		
L-2	Importance of environment		
L-3	Needs for public awarness		
	Natural Resources		
L-4	Renewable and non-renewable resources	**CH-2**	**CONCEPTS IN ENVIRONMENTAL STUDIES, D.D. MISHRA, S.CHAND PAGE 37 - 53**
L-5	Forest resources – Use and over exploitation , deforestation,timber extraction,dams and their effect on forests.		
L-6	Water resources-Use and over utilization of surface water,ground water,floods,droughts,benefits and problems		
L-7	Mineral resources-Use and exploitation of,environmental effects of extracting mineral.		
L-8	Food Resources-World food problems,change caused by agriculture,over grazing,effects of modern agriculture.		
L-9	Energy Resources-Growing energy need,renewable and non renewable energy.		
L-10	use of alternate energy sources, case studies		
L-11	Land resources-land as a resources.land degradation.		
L-12	man induces land slides, soil erosion, and desertification		
L-13	Role of individual in conservation of natural resources		
L-14	Equitable use of resources and sustainable life style.		
	Systems		
L-16	Concept of an eco system.	**CH-3**	**CONCEPTS IN ENVIRONMENTAL STUDIES, D.D. MISHRA, S.CHAND PAGE 56 - 75**
L-17	Structure of an eco system.		
L-18	function of an eco system.		
L-19	Producers, consumers, decomposers.		
L-20	Energy flow in the eco systems.		
L-21	Energy flow in the eco systems.		
L-22	Ecological succession.		
L-23	Food chains, food webs.		
L-24	Ecological Pyramids.		
L-25	Introduction, types, characteristic features of an ecosystem.		
L-26	structure and function of the ecosystem.		
L-27	Forest ecosystem.		
L-28	Aquatic ecosystem(pond,lake stream etc.)		
	Biodiversity and it's Conservation		
L-29	Introduction-Definition: genetics, species and ecosystem diversity.	**CH-4**	**CONCEPTS IN ENVIRONMENTAL STUDIES, D.D. MISHRA, S.CHAND**
L-30	Biogeographically classification of India.		
L-31	Value of biodiversity.		

L-32	consumptive use, productive use.		**PAGE 80 - 105**
L-33	Social,ethical,aesthetic,optim value.		
L-34	Biodiversity at global, national and local level.		
L-35	Threats to biodiversity: Habitats loss.		
L-36	poaching of wild life, man wildlife conflicts.		
L-37	**Environmental Pollution**		
L-38	Definition Causes of Air pollution.		
L-39	effects and control measures of Air pollution.		
L-40	Definition Causes of water pollution.		
L-41	effects and control measures of water pollution.		
L-42	Definition Causes of soil pollution.		
L-43	effects and control measures of soil pollution.		
L-44	Definition Causes of marine pollution.	**CH-5**	**CONCEPTS IN ENVIRONMENTAL STUDIES, D.D. MISHRA, S.CHAND** **PAGE 109 - 135**
L-45	effects and control measures of marine pollution.		
L-46	Definition Causes of thermal pollution.		
L-47	effects and control measures of thermal pollution.		
L-48	Definition Causes of noise pollution.		
L-49	effects and control measures of noise pollution.		
L-50	Nuclear hazards.		
L-51	Solid waste Management: Causes, effects and control measures of urban and industrial wastes.		
L-52	Role of an individual in prevention of pollution.		
L-53	Disaster management: Floods, earth quake.		
L-54	Cyclone and land slide		
L-55	**Social issues and the Environment**		
L-56	Form unsustainable to sustainable development.	**CH-6**	**CONCEPTS IN ENVIRONMENTAL STUDIES, D.D. MISHRA, S.CHAND** **PAGE 139 - 165**
L-57	Urban problems related to energy.		
L-58	Water conservation.		
L-59	rain water harvesting, water shed management.		
L-60	Environmental ethics: issue and possible solutions.		
L-61	Climate change, global warming.		
L-62	acid rain, ozone layer depletion.		
L-63	Nuclear hazards.		
L-64	Air prevention and control pollution act.		
L-65	Waterprevention and control pollution act.		
L-66	Public awareness.		
	Human population and the environment		
L-67	Population growth and variation among nations.	**CH-7**	**CONCEPTS IN ENVIRONMENTAL STUDIES, D.D. MISHRA, S.CHAND** **PAGE 169 - 201**
L-68	Population explosion.		
L-69	family welfare program.		
L-70	Environment and human health.		
L-71	Human rights.		
L-72	Value education.		
L-73	Role of information technology in environment ..		
L-74	Role of information technology in human health.		

MITS SCHOOL OF ENGINEERING,BHUBANESWAR

CIVIL ENGINEERING DEPARTMRNT

NAME OF FACUILTY: PRAGYAN P. MAHAPATRA

SUBJECT: CIVIL ENGINEERING LAB –I

EXP NO	NAME OF EXPERIMENT	EQUIPMENT REQUIRED	WORKING STATUS	VENUE
1	Determination of fineness of Cement by sieving.	90 μ SIEVE TROWEL	YES	CIVIL ENGG. LAB
2	Determination of normal Consistency,	VICATS APPARATUS	YES	CIVIL ENGG. LAB
3	Initial and final setting time of Cement	VICATS APPARATUS	YES	CIVIL ENGG. LAB
4	Determination of soundness of Cement by Le-Chatelier apparatus	LE-CHATELIER APPARATUS	YES	CIVIL ENGG. LAB
5	Determination of Compressive Strength of cement	COMPRESSIVE STRENGTH MACHINE	YES	CIVIL ENGG. LAB
6	Grading of Fine & Coarse aggregate by sieving for concrete .	SIEVE SHAKER APPARATUS	YES	CIVIL ENGG. LAB
7	Los-Angeles Abrasion Test of aggregate.	ABRASION TEST MACHINE	YES	CIVIL ENGG. LAB
8	Impact test of aggregate.	AGGREGATE IMPACT VALUE TEST	YES	CIVIL ENGG. LAB
9	Slump Cone method,	SLUMP TEST APPARATUS	YES	CIVIL ENGG. LAB
10	Compaction Factor method.	COMPACTION FACTOR TESTING MACHINE	YES	CIVIL ENGG. LAB
11	Determination of Crushing Value Test of aggregates	CRUSHING VALUE TEST APPARATUS	YES	CIVIL ENGG. LAB
12	Determination of Specific Gravity and Bulking of sand.	SPECIFIC GRAVITY TEST	YES	CIVIL ENGG. LAB

MITS SCHOOL OF ENGINEERING,BHUBANESWAR

CIVIL ENGINEERING DEPARTMRNT

NAME OF FACUILTY: PRAGYAN P. MAHAPATRA

SUBJECT: CIVIL ENGINEERING DRAWING–I

SL NO	NAME OF EXPERIMENT	EQUIPMENT REQUIRED	WORKING STATUS	VENUE
1	Draw,Format,Edit,Dimension,Modify commands	AutoCAD 2007	YES	COMPUTER LAB
2	Draw2DdrawingsofthefollowingBuilding	AutoCAD 2007	YES	COMPUTER LAB
3	Develop Isometric drawings of simple objects	AutoCAD 2007	YES	COMPUTER LAB
4	Develop 3D drawings of simple objects.	AutoCAD 2007	YES	COMPUTER LAB
5	Plan at window sill level of a single storeyed	AutoCAD 2007	YES	COMPUTER LAB
6	sectional views form given line diagram and specification.	AutoCAD 2007	YES	COMPUTER LAB
7	Detail drawing of Double storeyed pucca building with R.C.C. stair case.	AutoCAD 2007	YES	COMPUTER LAB
8	Preparation of approval drawing of a residential building	AutoCAD 2007	YES	COMPUTER LAB
9	PLAN, ELEVATION AND SECTION OF INCLINED ROOF BUILDING	AutoCAD 2007	YES	COMPUTER LAB
10	Orientation of buildings, location of.	AutoCAD 2007	YES	COMPUTER LAB
11	Orientation of buildings, location of openings	AutoCAD 2007	YES	COMPUTER LAB

MITS SCHOOL OF ENGINEERING, BHUBANESWAR

Lesson Plan

Name of the Subject : STRUCTURAL DESIGN- 1 **Semester :** 4TH SEM SUMMER
Name of the Faculty: Ms Pragyan p. Mahapatra

Lec	Topics Plan to be Covered	Chapte	Reference
❖	***INTRODUCTION***	**CH-1**	**Reinforced Concrete (H.J Saha .)**
L-01	INTRODUCTION -Working stress method (WSM)		
L-02	Objectives of design and detailing.		
L-03	State the different methods of design ofconcrete structures.		
L-04	Introduction to reinforced concrete		
L-05	R.C. sections their behavior, grades ofconcrete		
L-06	steel. Permissible stresses, assumption in W.S.M.		
L-07	Flexural design and analysis of single reinforced sections from first		
L-08	Concept of under reinforced, over reinforced and balanced sections.		
L-09	Advantages and disadvantages of WSM, reasons for its obsolescence		
❖	***Philosophy Of Limit State Method (LSM)***	**CH-2**	**Reinforced Concrete (H.J Saha .)**
L-10	Definition, Advantages of LSM over WSM		
L-11	IS code suggestions regarding design philosophy.		
L-12	Types of limit states, partial safety factors for materials strength		
L-13	Characteristic strength, characteristic load, design load, loading on		
L-14	Study of I.S specification regarding spacing of reinforcement in slab		
L-15	Cover to reinforcement in slab, beam column & footing,		
L-16	Minimum reinforcement in slab,beam & column, lapping, anchorage,		
L-17	Class unit test & discussion		
❖	***Analysis and Design of Single and Double Reinforced Sections (LSM)***	**CH-3**	**Reinforced Concrete (H.J Saha .)**
L-18	Limit state of collapse (flexure)		
L-19	Stress-Strain relationship for concrete and steel, Neutral axis, stress block		
L-20	Strain diagram for singly reinforced section.		
L-21	Concept of under- reinforced, over-reinforced and limiting section		
L-22	neutral axis co-efficient , limiting value of moment of resistance		
L-23	Limiting , percentage of steel required for limiting singly R.C. section.		
L-24	Analysis and design: determination of design constants		
L-25	Moment of resistance and area of steel for rectangular sections		
L-26	Necessity of doubly reinforced section, Design of doubly reinforced rectangular		
❖	**Shear, Bond and Development Length (LSM)**	**ch- 4**	**Reinforced Concrete (H.J Saha .)**
	Nominal shear stress in R.C. section		
L-29	Design shear strength of concrete,maximum shear stress		
L-30	design of shear reinforcement, minimum shear reinforcement		
L-31	Forms of shear reinforcement.		
L-32	Bond and types of bond, bond stress		
L-33	Check for bond stress, development length in tension and compression		
L-34	Anchorage value for hooks 900 bend and 450 bend standards lapping of		
L-35	Check for development length.		
L-36	Numerical problems on deciding whether shear reinforcement is		
L-37	check for adequacy of the section in shear.		
L-38	Design of shear reinforcement		

L-39	Minimum shear reinforcement in beams		
L-40	Numerical problems		
❖ **Analysis and Design of T-Beam (LSM)**		**CH-5**	**Reinforced Concrete (H.J Saha .)**
L-41	General features, advantages		
L-42	Effective width of flange as per IS: 456-2000 code provisions.		
L-43	Analysis of singly reinforced T-Beam		
L-44	Strain diagram & stress diagram, depthof neutral axis		
L-45	Moment of resistance of T-Beam section with xu lying with flange		
L-46	Simple numerical problems on deciding effective flange width.		
❖ **Analysis and Design of Slab and Stair case (LSM)**		**CH-6**	**Reinforced Concrete (H.J Saha .)**
L-47	Design of simply supported one-way slabs for flexure		
L-48	check for deflectioncontrol and shear. Design of one-way cantilever		
L-49	cantilevers chajjas for flexure checkfor deflection control		
L-50	Design of dog-legged staircase		
L-51	check for development length and shear.		
L-52	Design of two-way simply supported slabs for flexure with corner free to		
L-53	Detailing of reinforcement in stairs spanning longitudinally.		
❖ **Design of Axially loaded columns and Footings (LSM)**		**CH - 7**	**Reinforced Concrete (H.J Saha .)**
L-54	Assumptions in limit state of collapse- compression.		
L-55	Definition and classification of columns, effective length of column.		
L-56	Specification for minimum reinforcement; cover, maximum reinforcement, number of bars in rectangular,		
L-57	Square and circular sections, diameter and spacing of lateral ties.		
L-58	Analysis and design of axially loaded short square, rectangular and circular columns		
L-59	Types of footing, Design of isolated square column footing of		
L-60	Thickness for flexure and shear		
L-61	Class unit test & discussion		

MITS SCHOOL OF ENGINEERING, BHUBANESWAR

Lesson Plan

Name of the Subject: HYDRAULICS & IRRIGATION ENGINEERING Semester: 4th Sem. CIVIL

Name of the Faculty: Miss Simun Priyadarshini

Lecture rer No.	Topics Plan to be Covered	Chapter as per syllabus	Reference books/Chapter/Page No.
PART: A (Hydraulics)			
HYDROSTATICS			
L-01	Definition of hydrostatic pressure, Total pressure and centre of pressure.	**CH-1**	**Hydraulics & Fluid Mechanics (R.k banshal) PAGE NO: – (01- 17)**
L-02	Description of centre of pressure on: Vertical immersed bodies.		
L-03	Solve simple problems on centre of pressure on: Vertical immersed bodies.		
L-04	Description of centre of pressure on: Horizontal immersed bodies.		
L-05	Solve simple problems on centre of pressure on: Vertical immersed bodies.		
L-06	Description of Archimedes 'principle, concept of buoyancy, meta center and meta centric height (Definition only).		
L-07	Solve simple problems on meta center and meta centric height.		
L-08	Concept of floatation.		
L-09	Solve simple problems on floatation.		
KINEMATICS FLUID OF FLOW		**CH-2**	**Hydraulics & Fluid Mechanics (R.k banshal) PAGE NO: - (3 - 6)**
L-10	Types of fluid flow.		
L-11	Continuity equation (Statement and proof for one dimensional flow).		
L-12	Solve simple problems		
L-13	Bernoulli's theorem (Statement and proof).		
L-14	Solve simple problems.		
L-15	Applications and limitations of Bernoulli's theorem: Venturimeter.		
L-16	Applications and limitations of Bernoulli's theorem: Pitot tube.		
L-17	Solve simple problems.		
L-18	Revision of above Topics		
PUMP		**CH-3**	**Hydraulics & Fluid Mechanics (R.k banshal) PAGE NO: - (17-2)**
L-19	Type of pumps		
L-20	Centrifugal pump: basic principles, operation, discharge,		
L-21	horse power &efficiency.		
L-22	Reciprocating pumps: types, operation, discharge, horse power & efficiency		
L-23	Bernoulli's theorem (Statement and proof).		
L-24	Solve simple problems.		
L-25	Applications and limitations of Bernoulli's theorem: Venturimeter.		
L-26	Description of centre of pressure on: Vertical immersed		

L-27	Solve simple problems on centre of pressure on: Vertical immersed bodies.		
L-28	Description of centre of pressure on:		
L-29	Solve simple problems on centre of pressure on		
L-30	Centrifugal pump: basic principles, operation, discharge,	CH-4	Hydraulics & Fluid Mechanics (R.k banshal) PAGE NO: - (163-170)
L-31	Vertical immersed bodies.		
L-32	Horizontal immersed bodies.		
L-33	horse power &efficiency		
L-34	horse power &efficiency.		
L-35	Reciprocating pumps: types, operation, discharge, horse power & efficiency		
L-36	Bernoulli's theorem (Statement and proof).		
L-37	Solve simple problems.		
PART:B (Irrigation Engineering)		CH-1	Irrigation Engineering &Hydraulics Structures (S.K.Garg) PAGE NO: - 1- 19
HYDROSTATICS			
L-38	Hydrology Cycle		
L-39	Rainfall: types, intensity, hyetograph		
L-40	Estimation of rainfall, rain gauges, Its types(concept only),		
L-41	Concept of catchment area, types, run-off, estimation of flood discharge byDicken's and Ryve's formulae		
WATER REQUIREMENT OF CROPS			
L-42	Definition of irrigation, necessity, benefits of irrigation	CH-2	Irrigation Engineering &Hydraulics Structures (S.K.Garg) PAGE NO: - 20-34
L-43	Types of irrigation Crop season		
L-45	Duty, Delta and base period their relationship		
L-44	overlap allowance, kharifand rabi crops		
L-45	Gross command area, culturable command area,		
L-46	Intensity of Irrigation,irrigable area, time factor, crop ratio		
FLOW IRRIGATION		CH- 3	Irrigation Engineering &Hydraulics Structures (S.K.Garg) PAGE NO: - 46-58
L-47	Canal irrigation, types of canals, loss of water in canals		
L-48	Perennial irrigation		
L-49	Different components of irrigation canals and their functions		
L-50	Sketches of different canal cross-sections		
L-51	Classification of canals according to their alignment		

L-52	Various types of canallining – Advantages and disadvantages		
WATER LOGGING AND DRAINAGE		**CH-4**	**Irrigation Engineering &Hydraulics Structures (S.K.Garg)** **PAGE NO: - 60- 72**
L- 53	4.1 Causes and effects of water logging, detection, prevention and remedies		
L- 54	detection, prevention and remedies		
DIVERSION HEAD WORKS AND REGULATORY STRUCTURES		**CH- 5**	**Irrigation Engineering &Hydraulics Structures (S.K.Garg)** **PAGE NO: - 73-80**
L- 55	Necessity and objectives of diversion head works		
L-56	Weirs and barragesGeneral layout		
L-57	Functions of different parts of barrage		
L-58	Silting and scouring		
L-59	Functions of regulatory structures		
	CROSS DRAINAGE WORKS	**CH-6**	**Irrigation Engineering &Hydraulics Structures (S.K.Garg)** **PAGE NO: - 106- 125**
L-60	Functions and necessity of Cross drainage works		
L-61	aqueduct, siphon,		
L-62	super-passage, level crossing		
L-63	Concept of each with help of neat sketch		
L-64	NUMERICAL PROBLEMS		
L-65	UNIT TEST		
	DAMS	**CH-7**	**Irrigation Engineering &Hydraulics Structures (S.K.Garg)** **PAGE NO: - 223-256**
L-66	Necessity of storage reservoirs		
L-67	Types of dams		
L-68	Earthen dams: types		
L-69	Description, causes of failure		
L-70	Protection measures.		
L-71	Gravity dam- types		
L-71	Description, Causes of failure		
L-73	Protection measures. .		
L-74	Spillways- Types (With Sketch) and necessity		
L-75	UNIT TEST		

MITS SCHOOL OF ENGINEERING, BHUBANESWAR

CIVIL ENGINEERING DEPARTMENT
Lesson Plan

Name of the Subject :LAND SURVEYING –I **Semester :** 4TH SEM SUMMER
Name of the Faculty: Ms Pragyan p. Mahapatra

Lecturer No.	Topics Plan to be Covered Resistivity, factors affecting resistivity	Chapter as per syllabus	Reference books/Chapter/Page No.
	INTRODUCTION TO SURVEYING, LINEAR MEASUREMENTS:	**CH-1**	**Surveying & Levelling (N.N Basak) PAGE NO: 1-48**
L-1	Surveying: Definition, Aims andobjectives		
L-2	Principles of survey-Plane surveying- Geodetic Surveying- Instrumental surveying.		
L-3	Precision and accuracy of measurements, instruments usedfor measurement of distance, Types of tapes andchains		
L-4	Errors and mistakes in linear measurement – classification, Sources of errors andremedies		
L-5	Corrections to measured lengths due to-incorrect length, temperature variation, pull, sag, numerical problem applyingcorrections		
	CHAINING AND CHAIN SURVEYING :	**CH-2**	**Surveying & Levelling (N.N Basak) PAGE NO: 49-73**
L-6	Equipment and accessories forchaining		
L-7	Ranging – Purpose, signaling, direct and indirect ranging, Line ranger – features and use, error due to incorrectranging		
L-8	Methods of chaining –Chaining on flat ground, Chaining on sloping ground – stepping method, Clinometer-features and use, slopecorrection.		
L-9	Setting perpendicular with chain & tape, Chaining across different typesof obstacles –Numerical problems on chaining acrossobstacles		
L-10	Purpose of chain surveying, Its Principles, concept of fieldbook. Selection of survey stations, base line, tie lines, Checklines		
L-11	Offsets – Necessity, Perpendicular and Oblique offsets, Instruments for setting offset – Cross Staff, Optical Square		
L-12	Errors in chain surveying – compensating and accumulative errors causes & remedies		
L-13	Precautions to be taken during chainsurveying		
	ANGULAR MEASUREMENT AND COMPAS SURVEYING :	**CH-3**	**Surveying & Levelling (N.N Basak) PAGE NO:74-114**
L-14	Measurement of angles with chain, tape & compass		
L-15	Compass – Types, features, parts, merits & demerits, testing & adjustment of compass		
L-16	Designation of angles- concept of meridians – Magnetic, True, arbitrary; Concept of bearings – Whole circle bearing, Quadrantal bearing, Reduced bearing suitability of application, numerical		
L-17	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		
L-18	Effects of earth's magnetism – dip of needle, magnetic declination, variation in declination, numerical problems on application of correction for declination.		

L-19	Principles of traversing – open & closed traverse, Methods of traversing.Local attraction – causes, detection, errors, corrections,		
L-20	Numerical problems f application of correction due to local attraction		
L-21	Errors in compass surveying – sources &remedies.Plotting of traverse – check of closing error in closed & open traverse,Bowditch's correction, Gales table		
L-22	Gales table		
	MAP READING CADASTRAL MAPS & NOMENCLATURE:	**CH-4**	**Surveying & Levelling (N.N Basak) PAGE NO: 78-89**
L-23	Study of direction, Scale, Grid Reference and GridSquare Study of Signs andSymbols		
L-24	Cadastral Map PreparationMethodology		
L-25	Unique identification number of parcel		
L-26	Positions of existing Control Points and its types		
L-27	Adjacent Boundaries and Features, Topology Creation andverification		
PLANE TABLE SURVEYING:		**CH-5**	**Surveying & Levelling (N.N Basak) PAGE NO: 115-131**
L-28	Objectives, principles and use of plane table surveying		
L-29	Instruments & accessories used in plane table surveying.		
L-30	Methods of plane table surveying – (1) Radiation, (2) Intersection, (3) Traversing, (4) Resection		
L-31	Statements of TWO POINT and THREE POINT PROBLEM. Errors in plane table surveying and their corrections, precautions in plane table		
	THEODOLITE SURVEYING AND TRAVERSING:	**CH-6**	**Surveying & Levelling (N.N Basak) PAGE NO: 257-323**
L-33	Purpose and definition of theodolite surveying		
L-34	Transit theodolite- Description of features, component parts, Fundamental axes of a theodolite, concept of vernier, reading a vernier,		
L-35	Temporary adjustment of theodolite		
L-36	Concept of transiting –Measurement of horizontal and vertical angles		
L-37	Measurement of magnetic bearings, deflection angle, direct angle, setting out angles,		
L-38	prolonging a straight line with theodolite, Errors in Theodolite observations		
L-39	Methods of theodolite traversing with – inclined angle method, deflection angle method, bearing method,		
L-40	Plotting the traverse by coordinate method, Checks for open and closed traverse		
L-41	Traverse computation – consecutive coordinates, latitude and departure, Gale's traverse table,		
L-42	Numerical problems on omitted measurement of lengths & bearings		

L-43	Closing error – adjustment of angular errors, adjustment of bearings, numerical problems		
L-44	Balancing of traverse – Bowditch's method, transit method, graphical method, axis method.		
L-45	calculation of area of closed traverse		
	LEVELLING AND CONTOURING :	**CH-7**	**Surveying & Levelling (N.N Basak) PAGE NO: 132-205**
L-46	Definition and Purpose and types of leveling– concepts of level surface, Horizontal surface, vertical surface, datum, R. L., B.M.		
L-47	Instruments used for leveling, concepts of line of collimation, axis of bubble tube, axis of telescope, Vertical axis		
L-48	Levelling staff – Temporary adjustments of level, taking reading with level, concept of bench mark, BS, IS, FS, CP, HI		
L-49	Field data entry – level Book – height of collimation method and Rise & Fall method, comparison,		
L-50	Numerical problems on reduction of levels applying both methods, Arithmetic checks		
L-51	Effects of curvature and refraction, numerical problems on application of correction		
L-52	Reciprocal leveling – principles, methods, numerical problems, precise leveling		
L-53	Errors in levelingand precautions, Permanent and temporary adjustments of different types of levels		
L-54	Definitions, concepts and characteristics of contours.Methods of contouring, plotting contour maps, Interpretation of contour maps, toposheets		
L-55	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,		
L-56	computation of volume of earthwork from contour map for simple structure		
L-57	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 Relief, Drainage Pattern etc.), Problem Solving and Decision Making		
	COMPUTATION OF AREA & VOLUME:	**C H-8**	**Surveying & Levelling (N.N Basak) PAGE NO: 206-256**
L-58	Determination of areas, computation of areas from plans.		
L-59	Calculation of area by using ordinate rule, trapezoidal rule, Simpson's rule		
L-60	Calculation of volumes by prismoidal formula and trapezoidal formula,		

MITS SCHOOL OF ENGINEERING, BHUBANESWAR

Lesson Plan

Name of the Subject: Highway Engg . **Semester: 4TH**

Name of the Faculty : Miss Simun Priyadarshini

Lecturer No.	Topics Plan to be Covered Resistivity, factors affecting resistivity	Chapter as per syllab	Reference books/Chapter/Page No.
	Introduction	CH-1	Highway Engineering S.K.Khanna & C.E.G. Justo PAGE NO: 1- 11
L-1	Importance of Highway transportation: importance organizations like Indian roads congress, Ministry of Surface Transport, Central		
L-2	Functions of Indian RoadsCongress		
L-3	IRC classification ofroads		
L-4	Organisation of state highwaydepartment		
	Road Geometrics	CH-2	Highway Engineering S.K.Khanna & C.E.G. Justo PAGE NO: 12-48
L-5	Glossary of terms used in geometric and their importance, right of way, formation width,		
L-6	road margin, road shoulder, carriage way, side slopes,kerbs, formation level, camber andgradient		
L-7	Design and average running speed, stopping and passing		
L-8	Necessity of curves, horizontal and vertical curves including transitioncurves and super elevation, Methods o f providing super		
	Road Materials	CH-3	Highway Engineering S.K.Khanna & C.E.G. Justo PAGE NO: 72-166
L-9	Difference types of road materials in use: soil, aggregates,		
L-10	Function of soil as highwaySubgrade		
L-11	California Bearing Ratio: methods of finding CBR valued in the laboratory and at site and their significance		
L-12	Testing aggregates: Abrasion test, impact test, crushing strength test, water absorption test & soundness test		
	Road Pavements	CH-4	Highway Engineering S.K.Khanna & C.E.G. Justo PAGE NO: 309-387
L-13	Road Pavement: Flexible and rigid pavement, their merits anddemerits, typical cross-sections, functions of		
L-14	Flexible pavements: Sub-grade preparation: 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		
L-15	stabilization, preparation of subgrade, methods of checking camber, gradient and alignment as per recommendations of IRC, equipment used for subgrade preparation		
L-17	Sub base Course:Necessity of sub base, stabilized sub base, purpose of stabilization (no designs) Types of stabilization		
L-18	Mechanical stabilization.Lime stabilization.Cement stabilization,Fly ash stabilization		

L-19	Base Course: Preparation of base course, Brick soling, stone soling and metalling, Water Bound Macadam and wet-mix Macadam, Bituminous constructions: Different types		
L-20	Surfacing:Surface dressing (i)Premix carpet and (ii) Semi dense carpet,Bituminous concrete,Grouting		
L-21	Rigid Pavements:Concept of concrete roads as per IRC specifications		
Hill Roads		**CH-5**	**Highway Engineering S.K.Khanna & C.E.G. Justo PAGE NO: 388- 495**
L-22	Introduction: Typical cross-sections showing all details of a typical hill road in cut, partly in cutting and partly infilling		
L-23	Breast Walls, Retaining walls, different types of bends		
Road Drainage			
L-24	Necessity of road drainage work, cross drainageworks	**CH-6**	**Highway Engineering S.K.Khanna & C.E.G. Justo PAGE NO: 710-735**
L-25	Surface and sub-surface drains and storm water drains. Location, spacing and typical details of side drains, side ditches for surface		
L-26	Interceptingdrains, pipe drains in hill roads, details of drains in cutting embankment, typical cross sections		
Road Maintenance		**CH-7**	**Highway Engineering S.K.Khanna & C.E.G. Justo PAGE NO: 690-709**
L-27	Common types of road failures – their causes andremedies		
L-28	Maintenance of bituminous road such as patch work		
L-29	Maintenance of concrete roads – filling cracks, repairing joints,maintenance of shoulders (berm), maintenance of traffic		
L-30	Basic concept of traffic study, Traffic safety and traffic control		
Construction equipments		**CH-8**	**Highway Engineering S.K.Khanna & C.E.G. JustoPAGE NO: 617**
L-31	Preliminary ideas of the following plant and equipment		
L-32	Hot mixing plant		
L-33	Tipper, tractors (wheel and crawler) scraper, bulldozer, dumpers, shovels, graders, roller dragline		
L-34	Asphalt mixer and tar boilers		
L-35	Road pav		
L-37	Modern construction equipments forroads		

MITS School of Engineering, Bhubaneswar

Department of civil Engg

Lab Lesson Plan

Name of the Subject :- SURVEYING LAB -1

Name of the Faculty :- Mr.Pragyan p mahapatra **Semester:- 4th SEM**

VENUE: CIVIL ENGGG. LAB

SL. NO	Name of the experiment	Equipment Required	Working Status	Remark
01	Linear Mesurements, Chain Surveying	CHAIN ,TAPE,ARROW	AVAILABLE	
02	Angular Measurement and Compass Surveying	COMPASS	AVAILABLE	
03	Map Reading Cadastral Maps & Nomenclature	CADASTRIAL MAP	NOT AVAILABLE	
04	Plane Table Surveying	PLANE TABLE SET	AVAILABLE	
05	Theodolite Traversing	THEODOLITE	AVAILABLE	
06	Levelling and Contouring	THEODOLITE	AVAILABLE	
07	Basics of Aerial Photography	THEODOLITE	AVAILABLE	

MITS School of Engineering, Bhubaneswar

Department of civil Engg

Lab Lesson Plan

VENUE: Computer Lab

Name of the Subject :- CED Lab - 2

Name of the Faculty :- Mr.Pragyan p mahapatra **Semester:-** 4th SEM

SL.NO	Name of the experiment	Equipment Required	Working Status	Remark
01	RCC Slab culvert with right angled wing wall	AutoCAD SOFTWARE	NOT AVAILABLE	
02	Hume pipe culvert with splayed wing wall	AutoCAD SOFTWARE	NOT AVAILABLE	
03	Drawing of Irrigation Structures	AutoCAD SOFTWARE	NOT AVAILABLE	
05	Plumbing and Sanitary connections and fittings of a two roomed building	AutoCAD SOFTWARE	NOT AVAILABLE	
06	Detailed drawing of septic tank up to 50 users with soak pit and necessary connectionfrom the water closet.	AutoCAD SOFTWARE	NOT AVAILABLE	

MITS SCHOOL OF ENGINEERING, BHUBANESWAR
LESSON PLAN

Name of the Subject: Entrepreneurship and Management & Smart Technology **SEM:** 5th Sem (All Branch)
Name of the Faculty: Mr. Debasis Sahoo

Lect No.	Topics Plan to be Covered.	Chapter	Reference.
L-01	**Entrepreneurship:** Concept /Meaning of Entrepreneurship	**CH-1**	Industrial Engg. & Management by O.P Khanna/Ch-32
L-02	Need of Entrepreneurship		
L-03	Characteristics, Qualities and Types of entrepreneur, Functions		
L-04	Barriers in entrepreneurship & Entrepreneurs vrs. Manager		
L-05	Forms of Business Ownership: Sole proprietorship, partnership forms and others		
L-06	Types of Industries, Concept of Start-ups		
L-07	Entrepreneurial support agencies at National, State, District Level (Sources):		
L-08	DIC, NSIC,OSIC, SIDBI, NABARD, Commercial Banks, KVIC etc		
L-09	Technology Business Incubators (TBI) and Science and Technology Entrepreneur Parks		
L-10	**Market Survey and Opportunity Identification:** Business Planning	**CH-2**	Production and Operation Management by Panneerselvam/Ch-8
L-11	SSI, Ancillary Units, Tiny Units, Service sector Units		
L-12	Time schedule Plan, Agencies to be contacted for Project Implementation		
L-13	Assessment of Demand and supply and Potential areas of Growth		
L-14	Identifying Business Opportunity		
L-15	Final Product selection		
L-16	**Project Report Preparation:** Preliminary project report	**CH-3**	Production and Operation Management by Panneerselvam/Ch-11
L-17	Detailed project report, Techno economic Feasibility		
L-18	Project Viability		
L-19	**Management Principles:** Definitions of management	**CH-4**	Ind. Engg. & Mang O.P Khanna/Ch-32
L-20	Principles of management		
L-21	Functions of management (planning, organizing, staffing, directing and controlling etc.)		
L-22	Level of Management in an Organization		
L-23	**Functional Areas of Management:** Production management, Functions, Activities	**CH-5**	Industrial Engg. & Management by O.P Khanna/Ch-8&24
L-24	Productivity, Quality control Production Planning and control		
L-25	Inventory Management, Need for Inventory management Models/Techniques of Inventory		
L-26	Financial Management, Functions of Financial management, Management of Working capital		
L-27	Costing (only concept), Break even Analysis, Accounting Terminologies: Book Keeping,		
L-28	Journal entry, Petty Cash book, P&L Accounts, Balance Sheets		
L-29	Marketing Management, Concept of Marketing and Marketing Management		
L-30	Marketing Techniques, Concept of 4P s (Price, Place, Product, Promotion)		
L-31	Human Resource Management: Functions of Personnel Management		
L-32	Manpower Planning, Recruitment, Sources of manpower, Selection process, Method of Testing,		
L-33	Methods of Training & Development, Payment of Wages		
L-34	**Leadership and Motivation:** Leadership, Definition and Need/Importance	**CH-6**	Ind. Engg. & Mang by O.P Khanna/Ch-17
L-35	Qualities and functions of a leader, Manager Vs Leader, Style of Leadership		
L-36	Motivation: Definition and characteristics, Importance of motivation		
L-37	Factors affecting motivation, Theories of motivation, Methods of Improving Motivation		
L-38	Importance of Communication in Business, Types and Barriers of Communication		
L-39	**Work Culture, TQM & Safety:** Human relationship and Performance in Organization	**CH-7**	Total Quality Management by V. Jayakumar /Ch-7
L-40	Relations with Peers, Superiors and Subordinates,		
L-41	TQM concepts: Quality Policy, Quality Management, Quality system		
L-42	Accidents and Safety, Cause, preventive measures, General Safety Rules, (PPE)		
L-43	**Legislation:** Intellectual Property Rights(IPR), Patents, Trademarks, Copyrights	**CH-8**	Ind. Engg. & Mang O.P Khanna/Ch-22
L-44	Features of Factories Act 1948 with Amendment (only salient points)		
L-45	Features of Payment of Wages Act 1936 (only salient points)		
L-46	**Smart Technology:** Concept of IOT, How IOT works, Components of IOT	**CH-9**	Prod & Operation Mgt by Panneerselvam/ Ch-8
L-47	Characteristics of IOT, Categories of IOT, Applications of IOT- Smart Cities, Smart Transportation		
L-48	Smart Home, Smart Healthcare, Smart Ind, Smart Agri, Smart Energy Magt etc.		

MITS SCHOOL OF ENGINEERING,BHUBANESWAR

Lesson Plan

Name of the Subject :SD-II **Semester :5th**

Name of theFaculty :Miss Simun Priyadarshini

Lect no.	Topic plan to be covered	Chapter as per syllabus	Reference book/Chapter/Page no.
❖	**Introduction**	**CH-1**	**Elements of Steel ,Timber & Masonry Design (Samal&Panigrahi) Page no(1-10)**
L-01	Common steel structure, Advantages and disadvantages of steel structure.		
L-02	Types of steel, properties of structural steel.		
L-03	Rolled section Special considerations in steel design.		
L-04	Loads and loads combination		
L-05	Group Discussion		
L-06	Structural analysis and design philosophy		
L-07	Brief review of Principal of limit state design		
L-08	Unit Test		
	❖ **Structural steel Fasteners and Connections**	**CH-2**	**Elements of Steel ,Timber & Masonry Design (Samal&Panigrahi) Page no(175-186**
L-09	Bolted Connections		
L-10	Classification of bolts		
L-11	Advantages and Disadvantages of bolted connections		
L-12	Different terminology,Spacing and edge distance of bolt holes.		
L-13	Assignment Submission		
L-14	Types of bolted connection		
L-15	Types of action of fasteners		
L-16	Unit Test		
L-17	Different terminology, spacing and edge distance of bolt holes.		
L-18	Types of bolted connections		
L-19	Types of action of fasteners, assumptions and principles of design.		
L-20	Strength of plates inajoint, strengthofbearingtype bolts shear capacity		
L-21	Assignment Submission		
L-22	Unit Test		
L-23	Analysis & design of Joints using bearingtype and HSFG bolts (except eccentric load and prying forces)		
L-24	Efficiency of a joint.		
L-25	Welded Connections		
L-26	Assignment Submission		
L-27	Advantages and Disadvantages of welded connection		
L-28	Types of welded joints and specifications for welding		
L-29	Design stresses in welds		
L-30	Strength of welded joints.		
L-31	Assignment Submission		

L-32	Unit Test		
	❖ **Design of Steel tension Members**	**CH-3**	**Elements of Steel ,Timber & Masonry Design (Samal&Panigrahi) Page no(93-114)**
L-33	Common shapes of tension members		
L-34	Maximum values of effective slenderness ratio		
L-35	Analysis and Design of tension members		
L-36	Assignment Submission		
L-37	Unit Test		
	❖ **Design of Steel Compression members.**		
L-38	Common shapes of compression members	**CH-4**	**Elements of Steel ,Timber & Masonry Design (Samal&Panigrahi) Page no(129-152)**
L-39	Buckling class of cross sections , slenderness ratio		
L-40	Design compressive stress and strength of compression members.		
L-42	Analysis and Design of compression members (axialloadonly).		
L-43	Assignment Submission		
L-44	Unit Test	**CH-5**	**Elements of Steel ,Timber & Masonry Design (Samal&Panigrahi) Page no(175-186)**
	❖ **Design of Steel beams**		
L-45	Common cross sections and their classification		
L-46	Design of laterally supported beams against bending and shear.		
	❖ **Design of Tubular Steel Structures**	**CH-6**	**Elements of Steel ,Timber & Masonry Design (Samal&Panigrahi) Page no(175-186**
L-47	Round Tubular Sections, Permissible Stresses		
L-47	Unit Test		
L-49	Tubular Compression & Tension Members		
L-50	Joints in Tubular trusses		
L-51	Assignment Submission		
L-52	Unit Test		
	❖ **Design of Masonry Structures:**	**CH-7**	**Elements of Steel ,Timber & Masonry Design (Samal&Panigrahi) Page no(175-186**
L-53	Design considerations for Masonry walls & Columns		
L-54	Load Bearing & Non-Load Bearing walls		
L-55	Permissible stresses		
L-56	Slenderness Ratio		
L-57	Effective Length		
L-58	Height & Thickness.		
L-59	Assignment Submission		
L-60	Unit Test		

MITS SCHOOL OF ENGINEERING,BHUBANESWAR

Lesson Plan

Name of Subject :Railway& Bridge Engg. **Semester :5th**

Name of theFaculty :Miss Simun Priyadarshini

Lect no.	Topic plan to be covered	Chapter as per syllabus	Reference book/Chapter/Page no.
❖	**Introduction**	**CH-1**	**Railway Engineering (S.C Saxena& S.P Arora) Page no(2.1-2.25)**
L-01	Railway terminology,.		
L-02	Advantages of railways		
L-0	Classification of Indian Railways		
L-03	Unit Test	**CH-2**	**Railway Engineering (S.C Saxena& S.P Arora) Page no(3.1-3.13)**
❖	**Permanent way**		
L-04	Definition and components of a permanent way		
L-05	Concept of gauge,		
L-06	different gauges prevalent in India,		
L-07	suitability of these gauges		
L-08	Unit Test		
❖	**Track materials**	**CH-3**	**Railway Engineering (S.C Saxena& S.P Arora) Page no(6.1-9.21)**
L-09	Rails		
L-10	Functions and requirement of rails		
L-11	Types of rail sections, length of rails		
L-12	Rail joints – types, requirement of an ideal joint		
L-13	Purpose of welding of rails & its advantages		
L-14	Creep- definition, cause & prevention, Sleepers		
L-15	Unit Test		
L-16	Definition, function & requirements of sleepers		
L-17	Classification of sleepers,		
L-18	Advantages & disadvantages of different types of sleepers		
L-19	Ballast, Functions & requirements of ballast,		
L-20	Materials for ballast		
L-21	Fixtures for Broad gauge		
L-22	Connection of rails to rail-fishplate, fish bolts		
L-23	Connection of rails to sleepers		
L-25	Unit Test		
❖	**Geometric for broad gauge**	**CH-4**	**Railway Engineering (S.C Saxena& S.P Arora) Page no(15.1-15.45)**
L-26	Typical cross – sections of single & double broad gauge railway track		
L-27	Permanent & temporary land width		
L-28	Gradients for drainage		
L-29	Super elevation – necessity & limiting valued		
L-30	Unit Test		
❖	**Points and crossings**	**CH-5**	**Railway Engineering (S.C Saxena& S.P Arora) Page no(16.1-16.32)**
L-31	Definition, necessity of Points and crossings		
L-32	Types of points & crossings with tie diagrams		
	Unit Test		
❖	**Laying & maintenance of track**	**CH-6**	**Railway Engineering (S.C Saxena& S.P Arora) Page no(24.1-24.25)**
L-33	Methods of Laying & maintenance of track		
L-34	Duties of a permanent way inspector		

	❖ **Introduction to bridges:**	**CH-7**	**Railway Engineering (S.C Saxena& S.P Arora) Page no-**
L-35	Definitions		
L-36	Components of a bridge		
L-37	Classification of bridges		
L-38	Requirements of an ideal bridge		
L-39	Unit Test		
	❖ **Bridge site investigation, hydrology & planning**	**CH-8**	**Railway Engineering (S.C Saxena& S.P Arora) Page no**
L-40	Selection of bridge site, Alignment		
L-41	Determination of Flood Discharge		
L-42	Waterway & economic span		
L-43	Afflux, clearance & free board		
	Unit Test		
	❖ **Bridge foundation**	**CH-9**	**Railway Engineering (S.C Saxena& S.P Arora) Page no**
L-44	Scour depth minimum depth of foundation		
L-45	Types of bridge foundations – spread foundation, pile foundation-well foundation		
L-46	Coffer dams		
	Unit Test		
	❖ **Bridge substructure and approaches**	**CH-10**	**Railway Engineering (S.C Saxena& S.P Arora) Page no(**
L-47	Types of piers		
L-48	Types of abutments		
L-49	Types of wing walls		
L-50	Approaches		
L-51	Unit Test		
	❖ **Culvert & Cause ways**		
L-52	Types of culvers – brief description	**CH-11**	**Railway Engineering (S.C Saxena& S.P Arora) Page no(**
L-53	Types of causeways – brief description		
L-54	Unit Test		
L-55	Group discussion		
L-56	Group discussion		
L-57	Assignment submission		
L-58	Unit Test		
L-59	Unit Test		
L-60	Unit Test		

MITS SCHOOL OF ENGINEERING,BHUBANESWAR

Lesson Plan

Name of the Subject :WS& SE **Semester : 5th**

Name of theFaculty : Miss Pragyan Paramita Mahapatra

Lect no.	Topic plan to be covered	Chapter as per syllabus	Reference book/Chapter/Page no.
SECTIONA:WATERSUPPLY			
Introduction to Water Supply, Quantity and Quality of water			
L-1	Necessity of treated water supply	**CH-1**	**Text book on water supply & sanitary engineering (G.S.Birdie) Page no :295-301**
L-2	Per capita demand, variationin demand and factors affecting demand		
L-3	Methods of forecasting population,		
L-4	Impurities in water – organic and inorganic, Harmful effects of impurities		
L-5	Analysis of water –physical, chemical and bacteriological		
L-6	Water quality standards fordifferentuses		
Sources and Conveyance of water			
L-7	Surface sources – Lake, stream, river and impounded reservoir	**CH-2**	**Text book on water supply & sanitary engineering (G.S.Birdie) Page no :302-309**
L-8	Underground sources		
L-9	Yield from well- method s of determination		
L-10	Intakes – types, description of river intake, reservoir intake, canal intake		
L-11	Pumps for conveyance &distribution– types ,selection ,installation		
L-12	Pipe materials –necessity ,suitability ,merits & demerits of each type		
L-13	necessity,typesofjoints,suitability,methodsofjointingLayingofpipes–method		
Treatment of water			
L-14	Design of treatment units excluded.	**CH-3**	**Text book on water supply & sanitary engineering (G.S.Birdie) Page no :432-475**
L-15	Students may be asked to prepare detailed sketches of units,		
L-16	preferably from working drawing, as home assignment		
L-17	Field visit to treatment plant		
L-18	under practical should be arranged after covering this unit.		
L-19	Flow diagram of conventional water treatment system		
L-21	Treatment process / units: Aeration ; Necessity		
L-22	Plain Sedimentation : Necessity, working principles, Sedimentation tanks –		
L-23	types, essential features, operation & maintenance		
L-24	Sedimentation with coagulation: Necessity, principles of coagulation, types of		
L-25	coagulants, Flash Mixer, Flocculator, Clarifier (Definition and concept only)		
L-26	Filtration : Necessity, principles, types of filtersSlow Sand Filter, Rapid Sand		
L-27	Disinfection : Necessity, methods of disinfection Chlorination – free and		
L-28	combinedchlorinedemand,availablechlorine,residual chlorine		
L-29	Pre-chlorination, break point chlorination, super- chlorination		
L-30	Softening of water – Necessity, Methods of softening – Lime soda process and		
L-31	Ion exchange method (Concept Only)		
Distribution system And Appurtenance in distribution system:		**CH-4**	**Text book on water supply & sanitary engineering (G.S.Birdie) Page no :224-240**
L-32	General requirements, types of distribution system-gravity, direct		
L-33	Methods of supply – intermittent and continuous		
L-34	Distribution system layout – types, comparison, suitability		
L-35	Valves-types, features, uses, purpose-sluice valves		
L-36	check valves, air valves, scour valves, Fire hydrants, Water meters		
L-37	Unit test		
W/s plumbing in building:		**CH-5**	**Text book on water supply & sanitary engineering (G.S.Birdie) Page no : 563-578**
L-38	Method of connection from water mains to building supply		
L-39	General layout of plumbing arrangement for water supply		

SECTION B: WASTE WATER ENGINEERING			
	Introduction	**CH-6**	**Text book on water supply & sanitary engineering (G.S.Birdie) Page no :295-301**
L-40	Aims and objectives of sanitary engineering		
L-41	Definition of terms related to sanitary engineering		
L-42	Conservancy and Water Carriage System – features, comparison, suitability		
L-43	Systems of collection of wastes		
L-44	Unit test		
QUANTITY AND QUALITY OF SEWAGE			
L-45	Domestic & industria lsewage ,variation in sewage flow,	**CH-7**	**Text book on water supply & sanitary engineering (G.S.Birdie) Page no :310-324**
L-46	Computation of size of sewer, application of Chazy's formula,		
L-47	General importance, strength of sewage, Characteristics of sewage-physical,.		
L-48	Concept of sewage-sampling, tests for – solids, pH, dissolved oxygen, BOD		
L-49	Numerical problem on computation quantity of sanitary sewage.		
SEWERAGE SYSTEM		**CH-8**	**Text book on water supply & sanitary engineering (G.S.Birdie) Page no :305-309**
L-50	Types of system-separate, combined, partially separate		
L-51	Shapes of sewer – rectangular, circular, avoid-features, suitability		
L-52	Laying of sewer-setting out sewer alignment		
L-53	Features, comparison between the types, suitability		
Sewage treatment:			
L-54	Principles of treatment, flow diagram of conventional treatment	**CH-9**	**Text book on water supply & sanitary engineering (G.S.Birdie) Page no :432-436**
L-55	Primary treatment – necessity, principles, essential features, functions		
L-56	Secondary treatment – necessity, principles, essential features, functions		
L-57	Unit test		
L-58	Unit test		
Sanitary plumbing for building:			
L-59	Requirements of building drainage, layout of lavatory	**CH-10**	**Text book on water supply & sanitary engineering (G.S.Birdie) Page no :385-397**
L-60	layout of building drainage		
L-61	Plumbing arrangement of single storied		
L-62	Multi storied building as per I.S. code practice		
L-63	Sanitary fixtures – features, function, and maintenance and fixing of the fixtures		
L-64	water closets, flushing cisterns, urinals, inspection chambers,		
L-65	Traps, anti- syphonage Pipe		

MITS SCHOOL OF ENGINEERING, BHUBANESWAR

Lesson Plan

NAME OF THE SUBJECT : ESTIMATION& COST EVALUATION-II **SEMESTER: 5TH**

NAME OF THE FACUILTY :ER PRAGYAN P. MAHAPATRA

Lect No	Topics Plan to be Covered Resistivity, factors affecting resistivity	Chapter as per syllabus	Reference books/Chapter/Page No.
❖	**DETAILED ESTIMATE OF CULVERTS AND BRIDGES**	**CH- 1**	Estimating, Costing, specification &Valuation in Civil Engineering. (M.Chakraborty.) PAGE NO : 388- 419
L-01	Detailed estimate of a RCC slab culvert with right angled bending schedule.		
L-02	RCC Hume pipe culvert wingwall,		
L-03	Wing walls with bar		
L-04	Splayed angled		
L-05	Practicing estimate		
L-06	Numerical problems ,Practicing estimate		
L-07	Numerical problems		
❖	**ESTIMATE OF IRRIGATION STRUCTURES**	**CH- 2**	**Estimating, Costing, specification &Valuation in Civil Engineering. (B.N. DUTTA .) PAGE NO : 415- 447**
L-08	Detailed estimate of simple type of vertical fall to givenspecification		
L-09	Detailed estimate of drainage siphon to given specification.		
L-10	Detailed estimate of drainage		
L-11	Numerical problems		
L-12	Numerical problems		
L-13	Numerical problems		
L-14	Numerical problems		
L-15	Numerical problems		
L-16	Disscussin		
L-17	Practicing estimate		
L-18	Disscussin		
L-19	unit test		
L-20	unit test		
❖	**DETAILED ESTIMATE OF ROADS**	**CH- 3**	Estimating, Costing, specification &Valuation in Civil Engineering. (B.N. DUTTA .) PAGE NO : 328-372
L-2	Detail estimate of a water bound macadamroad		
L-21	Disscussin and unit test		
L-22	Detailed estimate of a flexible pavement in cutting /filling		
L-23	Disscussin and unit test		
L-24	Detailed estimate of septic tank and soak pit for 50 user		
L-25	Practicing estimate		
L-26	Numerical problems		
L-27	Numerical problems		
L-28	Numerical problems		
L-29	Numerical problems		
L-30	Numerical problems		
L-31	Disscussin		
L-30	Numerical problems		
❖	**Miscellaneous estimates**	**CH- 4**	Estimating, Costing, specification &Valuation in Civil Engineering. (B.N. DUTTA .) PAGE NO : 320-323
L-32	Tube well, Isolated and combined footings.		
L-33	Piles and Pile cap		
L-34	Detailed estimate of septic tank and soak pit for 50 user		

L-35	Practicing estimate		
L-36	unit test		
❖	**Pwd accounts works**	**CH- 5**	**Estimating, Costing, specification &Valuation in Civil Engineering. (B.N. DUTTA .)** **PAGE NO : 679-762**
L-37	Works Classification of work-original		
L-38	Major, petty, repair work, annual repair		
L-39	Contract and agreement,		
L-40	work order, types of contract, piece work agreement.		
L-41	Accunts of work		
L-42	Explanation of various terms		
L-43	Administrative approval,		
L-44	Technical sanction, tender		
L-45	Preparation of notice inviting tender		
L-46	Quotations, earnest money		
L-47	E-tendering, security deposit		
L-48	Advance payment, intermediate payment		
L-49	Measurement book use & maintenance,		
L-50	Labour employed		
L-51	standard measurement books and common irregularity		
L-52	Numerical problems		
L-53	Numerical problems		
L-54	Numerical problems		
L-55	Numerical problems		
L-56	Numerical problems		
L-57	Muster roll : Its preparation & use for making payment of pay & wages		
L-58	Acquittance Roll : Its preparation & use for making payment of pay & wages		
L-59	Labour & labour report, method of labour payment,		
L-60	Classification of stores, receipt / issue statement on standard form		
L-61	Method of preparation of stock account,		
L-62	Preparation and submission of returns, verification of stocks		

MITS SCHOOL OF ENGINEERING,BHUBANESWAR

CIVIL ENGINEERING DEPARTMENT

NAME OF THE FACUILTY-SIMUN PRIYADARSHINI

SUBJECT: CIVIL ENGINEERING LAB -II

5TH SEM winter

EXP ,NO	NAME OF EXPERIMENT	EQUIPMEN REQUIRED	WORKING STATUS	**VENUE**
1	Determination of Specific gravity of Soil by Pycnometer /Density bottle.	Pycnometer /Density bottle.	Working	**Civil engg lab**
2	Determination of Field Density of Soil by Core Cutter Method.	Cylindrical Core Cutter	Working	**Civil engg lab**
3	Determination of Particle Size gradation of sand/Gravel by sieve analysis.	Sieve set	Working	**Civil engg lab**
4	Wet mechanical analysis using pippette method for clay and silt	Pippette method test	Working	**Civil engg lab**
5	Determination of Liquid Limit by soil by Casagrande apparatus	Casagrande	Working	**Civil engg lab**
6	Determination of Coefficient of permeability of course grained soils	Permeability TEST APPARATUS	Working	**Civil engg lab**
7	Determination of Shrinkage limit of soil	Container ,Dry oven, weight machine	Working	**Civil engg lab**
8	Determination of MDD &OMC of soil by using modified Proctor Test.	Standart Proctor test apparatus	Working	**Civil engg lab**
9	Determination of CBR value single Laboratory CBR Testing device.	CBR test apparatus	Working	**Civil engg lab**
10	Penetration Test of Bitumen.	Penetrometer	Working	**Civil engg lab**
11	Ductility Test of Bitumen.	Ductility testing machine	Working	**Civil engg lab**
12	Viscosity Test of Bitumen.	viscometer	Working	**Civil engg lab**

MITS SCHOOL OF ENGINEERING,BHUBANESWAR

CIVIL ENGINEERING DEPARTMRNT

NAME OF FACUILTY: PRAGYAN P. MAHAPATRA

5TH SEM WINTER

SUBJECT: ESTIMATING PRACTICE LAB -II

EXP NO	NAME OF EXPERIMENT	EQUIPMENT REQUIRED	WORKING STATUS	VENUE
1	Detailed estimate from working drawings	Ms excel soft	yes	Computer lab
2	A rcc slab culvert with specification	Ms excel soft	yes	Computer lab
3	Analysis of rates in detail for the above items of works	Ms excel soft	yes	Computer lab
4	Calculation of dry materials for different items of BRIDGES	Ms excel soft	yes	Computer lab
5	Preparation of abstract of cost and bill of quantities of A SEPTIC TANK	Ms excel soft	yes	Computer lab
6	A detaild drawing irrigation structures with specification	Ms excel soft	yes	Computer lab

MITS SCHOOL OF ENGINEERING, BHUBANESWAR

Lesson Plan

Name of the Subject : Construction Management **Semester:6thsem**
Name of the Facuilty : Er.Simun Priyadarshini

Lecturer	Topics Plan to be Covered Resistivity, factors affecting resistivity	Chapter as per syllabu	Reference books/Chapter/Page No.
	Introduction To Construction Management	CH-1	**Dr. U K Shrivastava Construction planning and management**
L-1	Aims and objectives of construction management		
L-2	Functions of construction management		
L-3	The construction team components- owner,engineer,architect,contractor-their functions and interrelationship and jurisdiction		
L-4	Resources for constructionmanagement-men,machines,materials,money.		
	Constructional Planning	CH-2	**Dr. U K Shrivastava Construction planning and management**
L-5	Importance of Construction Planning		
L-6	Developing work breakdown structure for construction work		
L-7	Construction Planning stages-Pre-tender stage, Post-tender		
L8	Construction scheduling by Bar charts-preparation of Bar Charts for simple construction works		
L-9	Preparation of schedules for labour materials, machinery, finance for small works		
L-10	Limitation of Bar charts		
L-11	Construction scheduling by network techniques-defination of terms ,PERT and CPM techniques, advantages and disadvantages of two		
L-12	, network analysis, estimation of time and critical path, application of PERT and CPM techniques in sample construction works		
	Materials and Stores Management	CH-3	**Dr. U K Shrivastava Construction planning and management**
L-13	Classification of Stores-storage of stock		
L-14	Issue of materials-indent , invoice, bin card		
	Construction Site Management	CH-4	**Dr. U K Shrivastava Construction planningand management**
L-15	Job Lay out-Objectives, Review plans, specifications, Lay out ofequipments.		
L-16	Location of equipment, organizing laboura tsite		
L-17	Job lay out for different constructionsites		
L-18	Principle of storing material atsite		
Construction Organization		CH-5	**Dr. U K Shrivastava Construction planning and management**
L-19	Introduction – Characteristics, Structure,importance		
L-20	Organization types-line and staff, functions and theircharacteristics		
L-21			
L-22	Principles of organization- meaning and significance of terms- control, authority, responsibility, job & task		

L-23	Leadership-necessity, styles of leadership, role of leader		
L-24	Human relations-relations with subordinates, peers, Supervisors, characteristics of group behavior, mob psychology, handling of grievances, absenteeism, labour welfare.		
L-25	Conflicts in organization-genesis of conflicts, types-intrapersonal, interpersonal, intergroup, resolving conflicts		
Construction Labour and Labour Management			
L-26	Preparing Labour schedule	CH-6	**Dr. U K Shrivastava Construction planning and management**
L-27	Essential steps for optimum labour output		
L-28	Labour characteristics		
L-29	Wages & their paymentplane,Labour incentive, Motivation- Classification of motives, different approaches to motivation		
Equipment Management			
L-30	Preparing the equipmentschedule	CH-7	**Dr. U K Shrivastava Construction planning and management**
L-31	Identification of different alternativeequipment		
L-32	Importance of Owning &operating costs in making decisions for hiring &purchase ofequipment		
L-33	Inspection and testing ofequipment		
L-34	Equipmentmaintenance		
Quality Control			
L-35	Concept of quality inconstruction	CH-8	**Dr. U K Shrivastava Construction planning and management**
L-36	Quality Standards- during construction, after construction, destructive &non destructive methods		
Monitoring Progress		CH-9	**Dr. U K Shrivastava Construction planning and management**
L-37	Programmeand progress ofwork		
L-38	Workstudy		
L-39	Analysis and control of physical and financial progress corrective measures		
Safety Management In Construction		CH-10	**Dr. U K Shrivastava Construction planning and management**
L-40	Importance of safety		
L-41	causes and effects of accidents in constructionworks		
L-42	Safety measures in worksites for excavation, scaffolding, formwork, fabrication and erection,demolition		
L-43	Development of safety consciousness		
L-44	Safety legislation- Workman's compensation act, contract labouract		
Role of Vulnerability Atlas of India in construction projects		CH-11	**Dr. U K Shrivastava Construction planning and management**
L-45	Introduction to Vulnerability Atlas of India, Concepts of natural hazards and disasters and vulnerability profile of India. Definition of disaster related terms		
L-46	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 resistantmeasures		

L-47	Wind / Cyclone hazard and vulnerability, wind speed and pressures, wind hazard and cyclone occurrence maps, storm surveys and cyclone resistant measures		
L-48	Flood hazard and vulnerability, Flood hazard and Flood prone areas of the country, General protection of habitants and flood resistantconstruction		
L-49	Landslides, Tsunamis and Thunderstorm hazards and vulnerability, Landslide &Thunderstorm incidence maps, Measures against Tsunami hazards		

MITS SCHOOL OF ENGINEERING, BHUBANESWAR

CIVIL ENGINEERING DEPARTMENT
Lesson Plan

Name of the Subject :LAND SURVEYING –I I **Semester :** 6TH SEM SUMMER
Name of the Faculty: Ms Pragyan p. Mahapatra

Lecturer No.	Topics Plan to be Covered **Resistivity, factors affecting resistivity**	Chapter as per syllabus	Reference books/Chapter/Page No.
	❖ **TACHEOMETRY:**	**CH-1**	**Surveying And Levelling (N. N. Basak)**
L-01	Principles, stadia constants determination		
L-02	Stadia tacheometry with staff held vertical and with line of collimation horizontal orinclined, numerical problems		
L-03	Elevations and distances of staff stations – numerical problems		
L-04	staff held vertical and with line of collimation horizontal or		
L-05	numerical problems		
L-06	numerical problems		
L-07	numerical problems		
L-08	Class unit test & discussion		
L-09	numerical problems		
	❖ **CURVES :**	**CH-2**	**Surveying And Levelling (N. N. Basak)**
L-10	compound, reverse and transition curve, Purpose & use of different types ofcurves in field		
L-11	Elements of circular curves, numerical problems		
L-12	Preparation of curve table for setting out		
L-13	Setting out of circular curve by chain and tape and by		
L-14	(i) offsets from long chord,(iv) offsets from chord produced		
L-15	(ii) successive bisection of arc , iii) offsets fromtangents		
L-16	(v) Rankine's method of tangent angles(No derivation)		
L-17	Obstacles in curve ranging – point of intersection inaccessible		
	❖ **BASICS ON SCALE AND BASICS OF MAP:**	**CH-3**	**Surveying And Levelling (N. N. Basak)**
L-18	Fractional or Ratio Scale, Linear Scale, Graphical Scale		
L-19	What is Map, Map Scale and Map Projections		
L-20	How Maps Convey Location and Extent		
L-21	How Maps Convey characteristics of features		
L-22	How Maps Convey Spatial Relationship		
L-23	Classification of Maps		
L-24	Physical Map		
L-25	Topographic Map & Road Map		
L-26	Political Map		
L-27	Economic & Resources Map		
L- 28	Thematic Map		
	❖ **SURVEY OF INDIA MAP SERIES:**	**CH- 4**	**Surveying And Levelling**
L-29	Open Series map		
L-30	Defense Series Map		

L-31	Map Nomenclature		**(N. N. Basak)**
L-32	Quadrangle Name		
L-33	Latitude, Longitude, UTM's		
L-34	Contour Lines , Public Land Survey System		
L-35	Magnetic Declination, Field Notes		
	❖ **BASICS OF AERIAL PHOTOGRAPHY, PHOTOGRAMMETRY, DEM AND ORTHOIMAGE GENERATION**	**CH-5**	**Surveying And Levelling (N. N. Basak)**
L-36	Aerial Photography:		
L-37	Film, Focal Length, Scale		
L-38	Types of Aerial Photographs (Oblique, Straight)		
L-39	Photogrammetry:		
L-40	Classification of Photogrammetry		
L- 41	Aerial Photogrammetry		
L-42	Terrestrial photogeometry		
L-43	Acquisition of Imagery using arial and satellite platform		
L-44	Controle survey		
	Geometric Distortion in Imagery		
L-45	Application of Imagery and its support data		
L- 46	Orientation and Triangulation		
L- 47	Stereoscopic Measurement		
L-48	19.9.1 X-parallax 19.2.2 Y-parallax		
L-49	DTM/DEM Generation		
L-50	Ortho Image Generation		
L- 51	Unit test		
	MODERN SURVEYING METHODS :	**CH -6**	**Surveying And Levelling (N. N. Basak)**
L- 52	Principles, features and use of (i) Micro-optic theodolite, digital theodolite		
L-53	Working principles of a Total Station (Set up and use of total station to measure angles		
L- 54	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.		
	BASICS ON GPS & DGPS AND ETS	**CH - 7**	**Surveying And Levelling (N. N. Basak)**
L-55	GPS: - Global Positioning Working Principle of GPS.GPS Signals		
L- 56	Errors of GPS,Positioning Methods		
L- 57	DGPS :- Differential Global Positioning System		
L-58	Base Station Setup Rover GPS Set up		
L- 59	Download, Post-Process and Export GPS data		
L- 60	Sequence to download GPS data from flashcards Sequence to Post-Process GPS data		
L-61	Sequence to export post process GPS data Sequence to export GPS Time tags to file		

L-62	ETS: - Electronic Total Station		
L-63	Distance Measurement		
L- 64	Angle measurement		
L-65	Levelling		
L-66	Determining position		
L-67	Reference networks		
L-68	Errors and Accuracy		
L-69	Unit test		
L-70	Unit test		
BASICS OF GIS AND MAP PREPARATION USING GIS		**CH - 8**	**Surveying And Levelling (N. N. Basak)**
L- 71	Components of GIS, Integration of Spatial and Attribute Information		
L-72	Three Views of Information System		
L-73 L-74	Database or Table View, Map View and Model View		
L-75	Change page orientation.		
L-76	Spatial Data Model		
L-76	Attribute Data Management and Metadata Concept		
L-77	Prepare data and adding to Arc Map.		
L-78	Organizing data as layers.		
L-79	Editing the layers		
L-80	Switching to Layout View.		
L-81	Removing Borders.		
L-82	Adding and editing map information. Finalize the map		
L-83	GROUP DICUSSION		
L-84	Unit test		
L-87	Unit test		

MITS SCHOOL OF ENGINEERING, BHUBANESWAR

Lesson Plan

Name of the Subject:ACTE **Semester:6thsem**

Name of the Faculty :Er.Simun Priyadarshini

Lecturer No.	Topics Plan to be Covered Resistivity, factors affecting resistivity	Chapter as per syllabu	Reference books/Chapter/Page No.
Advanced construction materials			
L-1	Fibers and Plastics-	CH-1	**M.R. Samal Advance Construction and Equipment**
L-2	Types of fibers- Steel, Carbon, glass fibers, Use of fibers as construction material, properties of Fibers		
L-3	Types of plastics- PVC, RPVC, HDPE, FRP, GRP etc. Colored plastic sheets.Use of plastic as construction material		
L-4	Artificial Timbers – Properties and uses of artificial timber. Types of artificial timber available in market, strength of artificialtimber		
L-5	Miscellaneous materials – Properties and uses of acoustics materials, wall claddings, plaster boards, micro-silica, artificial sand, bonding agents, adhesivesetc		
Prefabrication		CH-2	**M.R. Samal Advance Construction and Equipment**
L-6	Introduction, necessity and scope of prefabrication of buildings prefabrication		
L-7	current uses of prefabrication , types of prefabricated systems,classificationof prefabrication, advantages and disadvantages ofprefabrication		
L-8	The theory and process of prefabrication, design principle of		
L9	types of prefabricated elements, modular coordination		
L-10	Indian standard recommendation for modularplanning		
Earthquake Resistant Construction			
L-11	BuildingConfiguration, Lateral Load resistingstructures, Buildingcharacteristics	CH-3	**M.R. Samal Advance Construction and Equipment**
L-12	Effect of structural irregularities-vertical irregularities ,place configuration problems		
L-13	Safety consideration during additional construction and alteration of existing Buildings		
L-14	Additional strengthening measures in masonry building-corner reinforcement,lintel band, sill band, plinth band, roof band, gable band etc		
Retrofitting of Structures		CH-4	**M.R. Samal Advance Construction and Equipment**
L-15	Seismic retrofitting of reinforced concrete buildings		
L-16	-Sources of weakness in RC frame building		
L-17	Classification of retrofitting techniques and their uses		

Building Services			
L-18	Cold Water Distribution in high rise building, lay out ofinstallation		**M.R. Samal Advance Construction and Equipment**
L-19	Hot water supply – General principles for central plants-layout		
L-20	Sanitation –soil and waste water installation in high risebuildings		
L-21	Electrical services – i) requirements in high rise buildings ii) Layout of wiring - types of wiring iii) Fuses and theirtypesiv)Earthingand theiruses		
L-22	Lighting – Requirement of lighting, Measurement of lightintensity		
L-23	Ventilation - Methods of ventilation (Natural and artificial Systems of ventilation) problems onventilation		
L-24	Mechanical Services- Lifts, Escalator, Elevators – types and uses		
Construction and earth moving equipments		CH-6	**M.R. Samal Advance Construction and Equipment**
L-25	Planning and selection of constructionequipments		
L-26	Studyonearthmovingequipmentslikedragline,tractor,bulldozer,Power shovel		
L-27	Studyandusesofcompactingequipmentsliketampingrollers,Smooth wheel rollers, Pneumatic tired rollers and vibratingcompactors,		
L-28	Owning and operating cost –problems		
Soil reinforcing techniques			
L-29	Necessity of soilreinforcing	CH-7	**M.R. Samal Advance Construction and Equipment**
L-30	Use wire mesh andgeo-synthetics		
L-31	Strengthening of embankments, Slope stabilization in cutting and embankments by soil reinforcingtechniques		

MITS School Of Engineering, Bhubaneswar

Department of Basic Science

Lesson Plan

Name oftheFaculty:- MS. Anima sAhoo **Sem: 6TH**

Subject: -Disaster Management

Lect no	Topic to be Covered	Chapter as Syllabus	Reference book
	Introduction		
L-1	**D**efinition of hazards,Disasters. Explain the differenc e between hazard and disaster.	**Unit-1**	**Disaster management by R. Subramanian 1-22**
L-2	Concept of risk and vulnerability.		
L-3	Risk reduction. Preparedness and mitigation.		
L-4	Disaster management cycle		
L-5	Personal and community awarness		
L-6	Types of Disaster, earthquake,Tsunami.Landslide,flood.		
L-7	Types of drought,forest fire,chemical and industrial accident.		
	Earthquake		
L-8	Definition and concept.	**Unit-2**	**Disaster management by R. Subramanian 22-44**
L-9	Intensity and Richter scale.		
L-10	Elements of risk.		
L-11	Hazard zones in india.		
L-12	Typical effect.- Physical damage,public health.		
L-13	Main mitigation strategies-Safe engineering practice		
	Tsunami		
L-14	Definition and concept	**Unit-3**	**Disaster management by R. Subramanian 44-84**
L-15	Onset, types and cases.		
L-16	Warning.		
L-17	Elements at risk.		
L-18	Typical effect.- Physical damage,public health.		
L-19	Specific preparedness- hazard mapping,early warning system.		
L-20	Community preparedness.		
L-21	Main mitigation strategies- site planning and management.		
L-22	Engineering structure and flood management.		
	Landslide		
L-23	Definition and concept	**Unit-4**	**Disaster management by R. Subramanian 84-114**
L-24	Onset type and warning		
L-25	Causs		
L-25	Elements at risk.		
L-26	Hazard zones and Indian landslide		
L-27	Physical damages and casualties		
L-28	Main mitigation strategies-hazard mapping,landslide practices.		
L-29	Retaining walls,engineering structures.		
	Cyclone		
L-30	Definition and concept	**Unit-5**	**Disaster management by R. Subramanian 114-139**
L-31	Onset type and warning		
L-32	Elements at risk.		
L-33	Typical effect		

L-34	Indian hazard zones		
L-35	Main mitigation strategies-hazard mapping,landslide practices.		
L-36	Enginering structures,flood management.		
	Flood		
L-37	Definition and concept ,onset type	**Unit-6**	**Disaster management by R. Subramanian 139-172**
L-38	Warning		
L-39	Elements at risk		
L-40	Hazard zone and Indian flood		
L-41	Physical damages and casualties		
L-42	Main mitigation strategies-hazard mapping,landslide practices.		
	Drought		
L-43	Definition and concept	**Unit-7**	**Disaster management by R. Subramanian 172-216**
L-44	Onset type		
L-45	Elements at risk		
L-46	Typical eefet.		
L-47	Main mitigation strategies-hazard mapping,landslide practices.		
	Forest fire		
L-48	Definition and concept	**Unit-8**	**Disaster management by R. Subramanian 216-243**
L-49	Forest fire damages in India		
L-50	Community involvement		
L-51	Public policies concerning fire		
L-52	The needs of fire management		
	Type of hazard and disasters		
L-53	Chemical ande Industrial disaster	**Unit-9**	**Disaster management by R. Subramanian 243-264**
L-54	Chemical ande Industrial disaster of brief explanation		
L-55	Epidemic-onset type,Warning,causes and effect		
L-56	Risk reduction measures		
L-57	Definition of heat waves, dangers and effects		
L-58	Forecast and warning awarness		
	Policy, planning for disaster		
L-59	Role of policy maker for disaster reduction.	**Unit-10**	**Disaster management by R. Subramanian 264-288**
L-60	Institutional arrangement in India		
L-61	Major institutions in stste and national levels.		

MITS School of Engineering, Bhubaneswar

Department of civil Engg

Lab Lesson Plan

VENUE: Civil Lab &Computer Lab

Name of the Subject:-:- Construction work Practices & MS Project **Semester :-** 6th sem

Name of the Faculty:-Miss. Simun Priyadarshini

SL.NO	Name of the experiment	Equipment Required	Working Status	Remark
01	Study of tools required for construction of masonry	Masonry tools	Available	
02	Lay out Plan of a building	Measuring steel tape (15m & 30m)	Available	
03	Construction of 1 &1 ½ Brick thick walls in English Bond in Mud mortar including a corner	Brick Mould	Available	
04	Introduction to Microsoft Project	MS Project software	Available	
05	Creating a project plan	MS Project software	Available	
06	Basics of Microsoft Project	MS Project software	Available	
07	Tracking the project progress	MS Project software	Available	
08	Project Reporting	MS Project software	Available	

MITS School of Engineering, Bhubaneswar

Department of civil Engg

Lab Lesson Plan

VENUE: CIVIL ENGGG. LAB

Name of the Subject :- CADD Lab and Design & Detailing Practice

Name of the Faculty :- Mr.Pragyan p mahapatra **Semester:-** 6th SEM

SL.NO	Name of the experiment	Equipment Required	Working Status	Remark
01	Structural Detailing Practice: 2-D Modelling of structures	AUTO CAD 2010 VERSION SOFTWARE	Available	
02	3-D modeling of building structures	AUTO CAD 2010 VERSION SOFTWARE	Available	
03	Use of STADD Pro Software	AUTO CAD 2010 VERSION SOFTWARE	Available	
05	design of a 3 storeyed building and preparation of reinforcement drawing and detailing	AUTO CAD 2010 VERSION SOFTWARE	Available	
06	Revit Architecture Software :	AUTO CAD 2010 VERSION SOFTWARE	Available	
07	Basics- Modify, Modelling- Ramp, Railing, Stair	AUTO CAD 2010 VERSION SOFTWARE	Available	

MITS School of Engineering, Bhubaneswar

Department of civil Engg

Lab Lesson Plan

VENUE: CIVIL ENGGG. LAB

Name of the Subject :- LAND SURVEY PRACTICE – II

Name of the Faculty :-MISS SIMUN PRIYADARSHINI **Semester**:- 6th SEM

SL.NO	Name of the experiment	Equipment Requir	Working Status	Remark
01	TRIGONOMETRICAL SURVEYING & TACHEOMETRY	STADIA ROD & CROSS STAFF	Available	
02	SETTING OUT CURVES AND SITE SURVEYING:	MEASURING MATRIC CHAIN	Available	
03	STUDY OF MAP AND MAP SERIES	ALL TYPES OF SURVEYING MAP	Available	
05	STUDY ON GPS & DGPS AND ETS	THEODOLITE	Available	
06	LEVELLING , PLOTTING	THODOLITE MEASURING CHAIN MEASURING STEEL TAPE	Available	