

<u>Lesson Plan</u>				
		Discipline :	Civil Engineering	
Subject	Highway Engg	Semester :	5th	
Lesson Plan Duration	15 Weeks			
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			4 - -	
Week	Theory		Delivery Date of Lecture	Whether the Lesson Plan Followed? Yes/No
	Lecture Day	Topic		
		(including Assignments / Seminar / Group Discussion / Sessional Tests)		
1st	1 st	Introduction to the subject and its necessity		
	2 nd	Unit-I Introduction		
	3 rd	Importance of Highway engineering Functions of IRC, CRRRI,		
	4th	MoRT&H, NHAI, Classification of roads.		
2 nd	1 st	Unit-2 Road Geometrics:Introduction		
	2 nd	Glossary of terms used in road geo-metrics and their importance: Right- of- way, formation width, road margin, road shoulder, Carriage way, side slopes, kerbs, formation levels, camber and gradient		
	3 rd	Average running speed, stopping and overtaking sight		
	4th	Necessity of curves, horizontal and vertical curves including transition curves.		
3 rd	1 st	Super elevation and methods of providing super elevation Sketch of typical cross-sections in cutting and filling on straight alignment and at a curve		
	2 nd	Unit-3 Highway Alignment:Introduction		
	3 rd	Basic considerations governing alignment for a road in plain and hilly area		
	4th	Highway location, marking of alignment on ground, setting out alignment of road, setting out bench marks, control pegs for embankment and cutting		
4 th	1 st	Unit-4 Road Materials:Introduction		
	2 nd	Different types of road materials in use; soil, aggregate and binders		
	3 rd	Introduction to California Bearing Ratio, method of finding CBR value and its significance.		
	4th	Aggregate : Source and types, important properties, strength, durability.		
5 th	1 st	Binders: Common binders; bitumen, properties as per BIS specifications, penetration, softening point, ductility and viscosity test of bitumen, procedures and significance, cutback and emulsion and their uses, Bitumen modifiers		
	2 nd	Unit-5 Road Pavements:Introduction		
	3 rd	Road pavement: Flexible and rigid pavement, their merits and demerits, typical cross-sections, functions of various components		
	4th	Sub-grade preparation: Borrow pits, making profiles of embankment, construction of embankment.		

6 th	1 st	Compaction, preparation of subgrade, methods of checking camber, gradient and alignment as per recommendations of IRC.		
	2 nd	Sessional Test-1		
	3 rd	Equipment used for subgrade preparation.		
	4 th	Stabilization of subgrade. Types of stabilization mechanical stabilization, lime stabilization.		
7 th	1 st	Cement stabilization, fly ash stabilization etc.(introduction only)		
	2 nd	Base Course:Granular base course: (a) Water Bound Macadam (WBM),(b) Wet Mix Macadam (WMM)		
	3 rd	Bitumen Courses:(a) Bituminous Macadam,(b) Dense Bituminous Macadam (DBM),		
	4 th	*Methods of construction as per MoRT&H		
8 th	1 st	Surfacing:Types of surfacing,a) Prime coat and tack coat.		
	2 nd	b)Surface dressing with seal coat,c) Open graded premix carpet		
	3 rd	d)Mix seal surfacing,e)Semi dense bituminous concrete f)Bituminous Concrete		
	4 th	Rigid Pavements:		
		Construction of concrete roads as per IRC specifications: Form work laying, mixing and placing the concrete.c		
9 th	1 st	Compacting and finishing, curing, joints in concrete pavement, equipment used. Roller compacted concrete.		
	2 nd	Unit-6 Hill Roads:Introduction		
	3 rd	Introduction: Typical cross-sections showing all details of a typical hill road, partly in cutting and partly in filling		
	4 th	Special problems of hill areas		
10 th	1 st	Landslides: Causes, prevention and control measures, use of geogrids, geoflexbiles, geo synthetics		
	2 nd	Drainage,Soil erosion		
	3 rd	Snow: Snow clearance,snow avalanches, frost		
	4 th	Land Subsidence		
11 th	1 st	Unit-7 Road Drainage:Introduction		
	2 nd	Necessity of road drainage work, cross drainage works		
	3 rd	Surface and subsurface drains and storm water drains. Location, spacing and typical details of side drains		
	4 th	Side ditches for surface drainage. Intercepting drains, pipe drains in hill roads, details of drains in cutting embankment, typical cross sections		
12 th	1 st	Sessional Test -2		
	2 nd	Unit-8 Road Maintenance: Introduction		
	3 rd	Common types of road failures of flexible pavements,Pot hole, cracks, rutting, alligator, cracking, upheaval - their causes and remedies (brief description)		
	4 th	Maintenance of bituminous road such as crack sealing, patch-work and resurfacing.		
	1 st	Maintenance of concrete roads-filling cracks, repairing joints, maintenance of shoulders (berms)		

13 th	2 nd	Unit-9 Road Construction Equipment:Introduction		
	3 rd	Output and use of the following plant and equipment		
	4 th	Hot mix plant ,Tipper, tractors (wheel and crawler).		
14 th	1 st	Scraper, bulldozer, dumpers, shovels, grader, roller, dragline		
	2 nd	Asphalt mixer and tar boilers		
	3 rd	Road pavers,Paver finisher		
	4 th	Unit-10 Airport Engineering :Introduction-		
15 th	1 st	Necessity of study of airport engineering, aviation transport scenario in India.		
	2 nd	Factors to be considered while selecting a site for an airport with respect to zoning laws.		
	3 rd	Introduction to Runways, Taxiways, Apron and Hanger		
	4 th	Sessional Test -3		
16 th		Revision of syllabus, display/Intimation of 3 rd Sessional marks, Academic evaluation-analysis of Sessionals.		

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<u>Lesson Plan</u>			
		Discipline :	Civil Engineering
Subject	HIGHWAY ENGINEERING(P)	Semester :	5TH
Lesson Plan Duration :	(
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Week	Topic	Delivery Date of Lecture	Whether the Lesson Plan Followed? Yes/ No
	(Including Assignments / Seminar / Group Discussion / Sessional Tests)		
1 st	Determination of penetration value of bitumen		
2 nd	Determination of softening point of bitumen		
3 rd	Determination of ductility of bitumen		
4 th	Determination of impact value of the road aggregate		
5 th	aggregate		
6 th	Sessional Test-1		
7 th	Determination of crushing strength of aggregate		
8 th	Determination of crushing strength of aggregate		
9 th	Determination of flakiness and elongation index of aggregate		
10 th	Determination of the California bearing ratio (CBR) for the sub-grade soil		
11 th	Determination of the California bearing ratio (CBR) for the sub-grade soil		
12 th	Sessional Test -2		
13 th	Demonstration of working of hot mix plant through a field visit		
14 th	Visit to highway construction site for demonstration of operation of: Tipper, tractors (wheel and crawler), scraper, bulldozer, dumpers, shovels, grader, roller, dragline, road pavers, JCB		
15 th	Demonstration of working of mixing and spraying equipment through a field visit		
	Sessional Test -3		
16 th	Revision of syllabus, display/Intimation of 3 rd Sessional marks, Academic evaluation-analysis of Sessionals.		

Lesson Plan

		Discipline :	Civil Engineering	
Subject	Railway Bridge and Tunnel	Semester :	5th	
Lesson Plan Duration :				
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Week	Theory		Delivery Date of Lecture	Whether the Lesson Plan Followed?
	Lecture Day	Topic (Including Assignments / Seminar / Group Discussion / Sessional Tests)		
Ist	1 st	Introduction to the subject and its necessity		
	2 nd	Unit-I Introduction:		
	3 rd	Introduction to Indian Railways		
	4th	Unit-2 Railway surveys:		
	5th	Factors influencing the railways route,		
2 nd	1 st	brief description of various types of railway survey		
	2 nd	Unit-3,4 Permanent way,Rail Gauge:		
	3 rd	Classification of permanent way describing its component parts		
	4th	Definition, types,		
	5th	Definition, types,		
3 rd	1 st	practice in India		
	2 nd	practice in India		
	3 rd	Unit-5 Rails		
	4th	Introduction		
	5th	Rails		
4 th	1 st	Types of rails		
	2 nd	Unit-6 Rail Fastenings:		
	3 rd	Rail joints, types of rail joints		
	4th	Fastenings for rails		
	5th	Fish plates, bearing plates		

5 th	1 st	Unit-7 Sleepers:		
	2 nd	Sleepers: Functions of sleepers		
	3 rd	Requirements of an ideal material for sleepers		
	4 th	Types of sleepers.		
	5 th	Unit-8 Ballast:		
6 th	1 st	Ballast: Function of ballast, requirements of an ideal material for ballast		
	2 nd	Unit-9 Crossings and signalling:		
	3 rd	Sessional Test-1		
	4 th	Crossings and signalling: Brief description regarding different types of crossings		
	5 th	Different types of signalling.		
7 th	1 st	Different types of signalling.		
	2 nd	Unit-10 Maintenance of track:		
	3 rd	Maintenance of track: Necessity, maintenance of track		
	4 th	Inspection of soil,Track and fixtures;		
	5 th	Maintenance and boxing of ballast maintenance gauges, tools.		
8 th	1 st	Unit-11 Earth work and drainage:		
	2 nd	Earth work and drainage: Features of rail road, bed level, width of formation, side slopes		
	3 rd	Drains, methods of construction		
	4 th	Requirement of drainage system		
	5 th	Unit-12 Station and yards: Purpose and types of stations and yards		
9 th	1 st	Unit-13 Bridge:		
	2 nd	Introduction, Bridge – its function and component parts		
	3 rd	Introduction, Bridge – its function and component parts		
	4 th	Difference between a bridge and a culvert		
	5 th	Unit-14 Classification of Bridges:		
	1 st	Their structural elements and suitability:According to life-permanent and temporary,According to deck level – Deck, through and semi-through,According to material –timber, masonry, steel, RCC, pre-stressedAccording to structural form;Grade Separators-Railway Road Over Bridges (ROB), Road Under Bridge (RUB)		
	2 nd	Beam type –RCC, T-Beam, steel girder bridges, plate girder and box girder, balanced cantilever,		

10 th	3 rd	Trussed bridges,Suspension type – unstiffened and stiffened and table (its description with sketches),According to the position of highest flood level submersible and non submersible		
	4 th	Trussed bridges,Suspension type – unstiffened and stiffened and table (its description with sketches),According to the position of highest flood level submersible and non submersible		
	5 th	According to the position of highest flood level submersible and non submersible,IRC classification		
11 th	1 st	Unit-15 Bridge Foundations:		
	2 nd	Bridge Foundations: Introduction to open foundation, pile foundation, well foundation		
	3 rd	Unit-16 Piers, Abutments and Wingwalls:		
	4 th			
	5 th			
12 th	1 st	Piers-definition, parts; types –solid (masonry and RCC), open,Abutments and wing walls – definition, types of abutments (straight and tee), abutment with wing walls (straight, splayed, return and curved)		
	2 nd	Unit-17 Bridge bearings:		
	3 rd	Purpose of bearings; types of bearings – fixed plate		
	4 th	Rocker and roller		
	5 th	Elastomeric bearings.		
13 th	1 st	Unit-18,19 Maintenance of Bridges,Tunnels		
	2 nd	Inspection of bridges		
	3 rd	Routine maintenance		
	4 th	Definition and necessity of tunnels		
	5 th	Unit-20 Section of tunnels:		
14 th	1 st	Typical section of tunnels for a national highway and single and double broad gauge railway track		
	2 nd	Unit-21 Ventilation:		
	3 rd	Ventilation –necessity and methods of ventilation, by blowing		
	4 th	Ventilation –necessity and methods of ventilation, by blowing		
	5 th	Exhaust and combination of blowing and exhaust		
	1 st	Unit-22,23 Drainage of tunnels,Lighting of tunnels:		
	2 nd	Drainage method of draining water in tunnels		

15 th	3 rd	Drainage method of draining water in tunnels		
	4 th	Lighting of tunnels		
	5 th	Sessional Test -3		
16 th		Revision of syllabus, display/Intimation of 3 rd Sessional marks, Academic evaluation-analysis of Sessionals.		

(14
Hours)

<u>Lesson Plan</u>			
:		Discipline :	Civil Engineering
Subject	R.C.C DRAWING(P)	Semester :	5TH
Lesson Plan Duration :	(
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		-	6
Week	Topic	Delivery Date of Lecture	Whether the Lesson Plan Followed? Yes/ No
	(Including Assignments / Seminar / Group Discussion / Sessional Tests)		
1st	1. RC Drawing: Reinforcement details from the given data for the following structural elements with bar bending schedules (i) Drawing No. 1: RC Slabs - One way slab .		
2 nd	RC Drawing:RC Slabs - Two way slab		
3 rd	RC Drawing:RC Slabs - Cantilever Slab.		
4 th	Drawing No.2 : Beams - Singly and doubly reinforced rectangular beams and Cantilever beam (All beams with vertical stirrups)		
5 th	Drawing No.2 : Beams - Singly and doubly reinforced rectangular beams and Cantilever beam (All beams with vertical stirrups)		
6 th	Sessional Test -1		
7 th	(iii) Drawing No.3 : Columns and Footings – Square, Rectangular and Circular Columns with lateral ties and their isolated sloped column footings.		
8 th	(iii) Drawing No.3 : Columns and Footings – Square, Rectangular and Circular Columns with lateral ties and their isolated sloped column footings.		
9 th	(iii) Drawing No.3 : Columns and Footings – Square, Rectangular and Circular Columns with lateral ties and their isolated sloped column footings.		
10 th	(iv) Drawing No. 4 : Portal Frame – Three bay two storey RC portal frame with blow up of column beam junctions.		
11 th	(iv) Drawing No. 4 : Portal Frame – Three bay two storey RC portal frame with blow up of column beam junctions.		
12 th	Sessional Test -2		
	(v) Drawing No. 5 : Draw atleast one sheet using AutoCAD software		
13 th	(v) Drawing No. 5 : Draw atleast one sheet using AutoCAD software		
14 th	(v) Drawing No. 5 : Draw atleast one sheet using AutoCAD software		
15 th	(v) Drawing No. 5 : Draw atleast one sheet using AutoCAD software Sessional Test -3		
16 th	Revision of syllabus, display/Intimation of 3 rd Sessional marks, Academic evaluation-analysis of Sessionals.		

<u>Lesson Plan</u>			
		Discipline :	Civil Engineering
Subject :	CACE	Semester :	5TH
Lesson Plan Duration :			
			L T P
			- - 6
Week	Theory		Delivery Date of Lecture
	Lecture Day	Topic (including Assignments / Seminar / Group Discussion / Sessional Tests)	Whether the Lesson Plan Followed? Yes/No
1st	1 st	Introduction and use of AutoCAD for making 2D Drawings	
	2 nd	Introduction and use of AutoCAD for making 2D Drawings	
2nd	1 st	Study of various commands of AutoCad	
	2 nd	Study of various commands of AutoCad	
3rd	1 st	Study of various commands of AutoCad	
	2 nd	Study of various commands of AutoCad	
4th	1 st	Study of various commands of AutoCad	
	2 nd	Study of various commands of AutoCad	
5th	1 st	Develop plan, section and elevation of a residential building	
	2 nd	Develop plan, section and elevation of a residential building	
6th	1 st	Sessional Test -1	
	2 nd	Develop plan, section and elevation of a residential building	
7th	1 st	Develop plan, section and elevation of a residential building	
	2 nd	Demonstration of Civil Engineering softwares - STAAD-Pro	
8th	1 st	Demonstration of Civil Engineering softwares - STAAD-Pro	
	2 nd	Demonstration of Civil Engineering softwares Revit	
9th	1 st	Demonstration of Civil Engineering softwares Revit	
	2 nd	Demonstration of Civil Engineering softwares Primavera Project Planner	
10 th	1 st	Demonstration of Civil Engineering softwares Primavera Project Planner	
	2 nd	Demonstration of Civil Engineering softwares Primavera Project Planner	
11 th	1 st	Sessional Test -2	
	2 nd	Demonstration of Civil Engineering softwares Auto CIVIL	
12 th	1 st	Demonstration of Civil Engineering softwares Auto CIVIL	
	2 nd	Demonstration of Civil Engineering softwares Mx Road	

13th	1 st	Demonstration of Civil Engineering softwares Mx Road		
	2 nd	Demonstration of Civil Engineering softwares Build Superfast		
14th	1 st	Demonstration of Civil Engineering softwares Build Superfast		
	2 nd	Demonstration of Civil Engineering softwares BIM, ArcGIS		
15th	1 st	Sessional Test -3		
	2 nd	Demonstration of Civil Engineering softwares BIM, ArcGIS		
16th	Revision of syllabus , Display /Intimation of 3rd Sessional marks, Academic evaluation -analysis of sessionals.			

Lesson Plan

			Discipline :	Civil Engineering
Subject :	Repair and maintenance of building		Semester :	5th
Lesson Plan Duration :				
				L T P
				4 - -
Week	Theory		Delivery Date of Lecture	Whether the Lesson Plan
	Lecture Day	Topic		
		(Including Assignments / Seminar / Group Discussion / Sessional Tests)		
1 st	1 st	Introduction to the subject and its necessity		
	2 nd	Unit-I Need for Maintenance :Introduction		
	3 rd	Importance and significance of repair and maintenance of buildings		
2 nd	1 st	Meaning of maintenance, Objectives of maintenance		
	2 nd	Factors influencing the repair and maintenance		
	3 rd	Unit-2 Agencies Causing Deterioration (Sources, Causes, Effects):Introduction		
3 rd	1 st	Definition of deterioration/decay, Factors causing deterioration, their classification		
	2 nd	Human factors causing deterioration		
	3 rd	Chemical factors causing deterioration		
	1 st	Environmental conditions causing deterioration		
	2 nd	Miscellaneous factors.		

4 th	3 rd	Effects of various agencies of deterioration on various building materials i.e. bricks, timber, concrete, paints, metals, plastics, stones		
5 th	1 st	Unit-3 Investigation and Diagnosis of Defects:Introduction		
	2 nd	Systematic approach/procedure of investigation		
	3 rd	Sequence of detailed steps for diagnosis of building defects/problems		
6 th	1 st	List non-destructive and others tests on structural elements and materials to evaluate the condition of the building and study of three most commonly used tests		
	2 nd	Sessional Test-1		
	3 rd	Unit-4 Defects and their root causes:Introduction		
7 th	1 st	Define defects in buildings		
	2 nd	Classification of defects		
	3 rd	Main causes of building defects in various building elements		
8 th	1 st	Foundations, basements and DPC		
	2 nd	Walls,Column and Beams,Roof and Terraces		
	3 rd	Joinery,Decorative and protective finishes, Services,Defects caused by dampnes		
9 th	1 st	Unit-5 Materials for Repair, maintenance and protection:Introduction		
	2 nd	Compatibility aspects of repair materials,State application of following materials in repairs,		
	3 rd	Anti corrosion coatings		
10 th	1 st	Adhesives/bonding aids, Repair mortars		
	2 nd	Curing compounds		
	3 rd	Joints sealants,Waterproofing systems for roofs, Protective coatings		
	1 st	Unit-6 Remedial Measures for Building Defects:Introduction		

11 th	2 nd	Preventive maintenance considerations, Surface preparation techniques for repair		
	3 rd	Crack repair methods, Epoxy injection, Grooving and sealing.		
12 th	1 st	Sessional Test -2		
	2 nd	Stitching, Adding reinforcement and grouting, Flexible sealing by sealant		
	3 rd	Repair of surface defects of concrete, Bug holes, Form tie holes, Honey comb and larger voids		
13 th	1 st	Repair of corrosion in RCC elements, Steps in repairing, Prevention of corrosion in reinforcement		
	2 nd	Material placement techniques with sketches, Pneumatically applied (The gunite techniques), Open top placement, Pouring from the top to repair bottom face, Birds mouth, Dry packing, Form and pump, Preplaced – aggregate concrete, Trowel applied method		
	3 rd	Repair of DPC against Rising Dampness, Physical methods, Electrical methods, Chemical methods		
14 th	1 st	Repair of walls, Repair of mortar joints against leakage, Efflorescence removal		
	2 nd	Waterproofing of wet areas and roofs, Water proofing of wet areas, Water proofing of flat RCC roofs,		
	3 rd	Various water proofing systems and their characteristics		
15 th	1 st	Repair of joints in buildings, Types of sealing joints with different types of sealants.		
	2 nd	Techniques for repair of joints, Repair of overhead and underground water tanks		
	3 rd	Sessional Test -3		
16 th		Revision of syllabus, display/Intimation of 3 rd Sessional marks, Academic evaluation-analysis of Sessionals.		

Lesson Plan

Name of the Faculty :		Discipline :	Civil Engineering
Subject	Reinforced Cement Concrete	Semester :	5th
Lesson Plan Duration :			
			L T P
			5 - -
Week	Theory		Delivery Date of Lecture
	Lecture Day	Topic	Whether the Lesson Plan Followed? Yes/ No
		(Including Assignments / Seminar / Group Discussion / Sessional Tests)	
1st	1 st	Introduction to the subject and its necessity	
	2 nd	Unit-I Introduction:Introduction	
	3 rd	Concept of Reinforced Cement Concrete (RCC)	
	4 th	Reinforcement Materials:- Suitability of steel as	
	5 th	Reinforcement Materials:- Suitability of steel as	
2 nd	1 st	Properties of mild steel and HYSD steel	
	2 nd	Loading on structures as per IS: 875	
	3 rd	Unit-2 Introduction to following methods of RCC design:Introduction	
	4 th	Working stress method: Definition and basic assumptions	
	5 th	Limit state method: Definition and basic assumptions	
3 rd	1 st	Limit state method: Definition and basic assumptions	
	2 nd	Unit-3 Shear and Development	
	3 rd	Shear as per IS:456-2000 by working stress method	
	4 th	i)Shear strength of concrete without shear reinforcement	
	5 th	i)Shear strength of concrete without shear reinforcement	
	1 st	ii)Maximum shear stress	

4 th	2 nd	iii) Shear reinforcement		
	3 rd	Unit-4 Concept of Limit State Method:Introduction		
	4 th	Definitions and assumptions made in limit state of collapse (flexure)		
	5 th	Definitions and assumptions made in limit state of collapse (flexure)		
5 th	1 st	Partial factor of safety for materials		
	2 nd	Partial factor of safetyfor loads		
	3 rd	Design loads		
	4 th	Stress block, parameters		
	5 th	Stress block, parameters		
6 th	1 st	Unit-5 Singly Reinforced beam:Introduction		
	2 nd	Sessional Test-1		
	3 rd	Theory and design of singly reinforced beam by Limit State Method		
	4 th	Theory and design of singly reinforced beam by Limit State Method		
	5 th	Theory and design of singly reinforced beam by Limit State Method		
7 th	1 st	Theory and design of singly reinforced beam by Limit State Method		
	2 nd	Theory and design of singly reinforced beam by Limit State Method		
	3 rd	Unit-6 Doubly Reinforced Beams:Introduction		
	4 th	Theory and design of simply supported doubly reinforced rectangular beam by Limit State Method		
	5 th	Theory and design of simply supported doubly reinforced rectangular beam by Limit State Method		
8 th	1 st	Theory and design of simply supported doubly reinforced rectangular beam by Limit State Method		
	2 nd	Theory and design of simply supported doubly reinforced rectangular beam by Limit State Method		
	3 rd	Theory and design of simply supported doubly reinforced rectangular beam by Limit State Method		
	4 th	Unit-7 Introduction		
	5 th	Behaviour of T beam.		
9 th	1 st	Inverted T beam.		
	2 nd	Isolated T beam		
	3 rd	And 'L' beams (No Numricals)		
	4 th	Unit-8 One Way Slab:Introduction		

	5th	Theory and design of simply supported one way slab including sketches showing reinforcement details (plan and section) by Limit State Method..		
10 th	1 st	Theory and design of simply supported one way slab including sketches showing reinforcement details (plan and section) by Limit State Method..		
	2 nd	Theory and design of simply supported one way slab including sketches showing reinforcement details (plan and section) by Limit State Method..		
	3 rd	Theory and design of simply supported one way slab including sketches showing reinforcement details (plan and section) by Limit State Method..		
	4th	Theory and design of simply supported one way slab including sketches showing reinforcement details (plan and section) by Limit State Method..		
	5th	Theory and design of simply supported one way slab including sketches showing reinforcement details (plan and section) by Limit State Method..		
11 th	1 st	Theory and design of simply supported one way slab including sketches showing reinforcement details (plan and section) by Limit State Method..		
	2 nd	Unit-9 Two Way Slab:Introduction		
	3 rd	Theory and design of two-way simply supported slab with corners free to lift.		
	4th	No provisions for torsional reinforcement by Limit State Method including sketches showing reinforcement details (plan and two sections)		
	5th	No provisions for torsional reinforcement by Limit State Method including sketches showing reinforcement details (plan and two sections)		
12 th	1 st	Sessional Test -2		
	2 nd	No provisions for torsional reinforcement by Limit State Method including sketches showing reinforcement details (plan and two sections)		
	3 rd	No provisions for torsional reinforcement by Limit State Method including sketches showing reinforcement details (plan and two sections)		
	4th	No provisions for torsional reinforcement by Limit State Method including sketches showing reinforcement details (plan and two sections)		
	5th	Revision		
	1 st	Unit-10 Axially Loaded Column:Introduction		

13 th	2 nd	Definition and classification of columns		
	3 rd	Effective length of column,		
	4 th	Specifications for longitudinal and lateral reinforcement		
	5 th	Specifications for longitudinal and lateral reinforcement		
14 th	1 st	Design of axially loaded square, rectangular and circular short columns by Limit State Method including sketching of reinforcement(sectional elevation and plan)		
	2 nd	Design of axially loaded square, rectangular and circular short columns by Limit State Method including sketching of reinforcement(sectional elevation and plan)		
	3 rd	Unit-11 Pre-stressed Concrete:Introduction		
	4 th	Concept of pre-stressed concrete		
	5 th	Methods of pre-stressing : pre-tensioning and post-tensioning		
15 th	1 st	Methods of pre-stressing : pre-tensioning and post-tensioning		
	2 nd	Advantages and disadvantages of pre-stressing		
	3 rd	Losses in pre-stress		
	4 th	Losses in pre-stress		
	5 th	Sessional Test -3		
16 th		Revision of syllabus, display/Intimation of 3 rd Sessional marks, Academic evaluation-analysis of Sessionals.		

Lesson Plan

Name of the Faculty :		Discipline :	Civil Engineering
Subject :	PLUMBING SERVICES	Semester :	5th
Lesson Plan Duration :			
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			3 - -
Week	Theory		Delivery Date of Lecture
			Whether the Lesson Plan Followed?
			Yes/No
	Lecture Day	Topic (including Assignments / Seminar / Group Discussion / Sessional Tests)	
1st	1 st	CH-1 Plumber's Tools Selection, use and care of tools required for plumbing work, such as threading die	
	2 nd	bit brace & Ratchet brace	
	3 rd	Pipe wrench, spanner set	
2nd	1 st	Pipe cutter, pipe vice	
	2 nd	Hacksaw, chisel, files and other common hand tools,	
	3 rd	bench drilling machine, soldering iron	
3rd	1 st	CH-2 Pipes and Pipe Fitting Selection and use of different pipes like GI Pipes, Plastic pipes,	
	2 nd	PVC pipes & HDPE pipes	
	3 rd	Cast iron pipes	
4th	1 st	Plumbing symbols	
	2 nd	Bends, Elbows, Sockets Tees, Unions	
	3 rd	Pipe cutting, Pipe bending	
5th	1 st	Pipe Threading, Pipe joints	
	2 nd	Pipe fitting	
	3 rd	Alignment of pipes	
6th	1 st	Sessional Test -1	
	2 nd	Branching of pipes	

	3 rd	Safety precautions		
7th	1 st	CH-3 Water Supply System Sources of water		
	2 nd	Rainwater harvesting		
	3 rd	Water supply systems in a town; Water distribution systems		
8th	1 st	Distribution reservoirs; Pumps		
	2 nd	Valves; Fire hydrants		
	3 rd	Storage of water in buildings; Types of tanks; Laying water supply pipe lines		
9th	1 st	CH-4 Domestic Drainage Drainage system (two pipe, one pipe, single stack and other systems)		
	2 nd	Trap, Cesspool, Sceptic tank		
	3 rd	Cleaning blocked pipes and drains		
10 th	1 st	Laying sanitary and sewer pipes, Manholes		
	2 nd	Inspection and testing (pressure & leakage test		
	3 rd	Testing straightness of pipes, ball test etc.)		
11 th	1 st	Sessional Test -2		
	2 nd	Fixing accessories		
	3 rd	Problems in drainage and their solution		
12 th	1 st	CH-5 Sanitary Appliances Flush toilet, Squat toilet, Wash basin		
	2 nd	Sink, Floor traps		
	3 rd	Urinal, Bathtub		
13th	1 st	Shower, Bidet		
	2 nd	Mixing tap, Popup waste		
	3 rd	CH-6 Heating System : Introduction		
14th	1 st	Heat transfer		
	2 nd	Water heater, Geyser		
	3 rd	Domestic hot water supply system		
15th	1 st	Sessional Test -3		
	2 nd	Central heating		
	3 rd	Solar water heater		

16th

Revision of syllabus , Display /Intimation of 3rd Sessional marks, Academic evaluation -analysis of sessionals.

Lesson Plan

Name of the Faculty : _____ **Discipline :** **Civil Engineering** **L** **T** **P**
Subject : **Building Construction** **Semester :** **3rd** **4** **-** **-**
Lesson Plan Duration : _____

Week	Theory		Delivery Date of Lecture	Whether the Lesson Plan Followed? Yes/No
	Lecture Day	Topic (Including Assignments / Seminar / Group Discussion / Sessional Tests)		
1st	1 st	Introduction to the subject and its necessity		
	2 nd	Unit – 1: Introduction Buildings and their classification		
	3 rd	Definition of a building, classification of buildings based on occupancy, Different parts of a building		
	4 th	Unit – 2: Foundations:Introduction		
2 nd	1 st	Concept of foundation and its purpose, Types of foundation-shallow and deep Shallow foundation - constructional details of: Spread foundations for walls, min. depth criteria, thumb rules for depth and width of foundation and thickness of concrete block,		
	2 nd	Types of foundation-shallow and deep Shallow foundation - stepped foundation formasonry pillars and concrete columns,		
	3 rd	Types of foundation-shallow and deep Introduction to deep foundation and their types		
	4 th	Earthwork: Layout/setting out for surface excavation, cutting and filling, Excavation of foundation,		
3 rd	1 st	Trenches, shoring, timbering and de- watering		
	2 nd	Unit – 3: Walls:Introduction		
	3 rd	Purpose of walls,Classification of walls- load bearing, non-load bearing, dwarf wall,retaining, breast walls and partition walls		
	4 th	Classification of walls as per materials of construction: brick, stone, reinforced brick, reinforced concrete, precast, hollow and solid concrete block and composite masonry walls		

4 th	1 st	Partition walls: Constructional details, suitability and uses of brick and wooden partition walls		
	2 nd	Scaffolding, construction details and suitability of mason's brick layers and tubular scaffolding, shoring, underpinning		
	3 rd	Unit – 4: Masonry:Introduction		
	4 th	Brick Masonry: Definition of terms like header, stretcher, queen closer, king closer, frog and quoin, course, bond, facing, backing, hearting, jambs, reveals, soffit, plinth, pillars and plasters		
5 th	1 st	Bond – meaning and necessity; English, flemish bond and other types of bonds		
	2 nd	Construction of brick walls –methods of laying bricks in walls, precautions observed in the construction of walls, methods of bonding new brick work with old (toothing, raking, back and block bonding), Expansion and contraction joints		
	3 rd	Mortars: types, selection of mortar and its preparation		
	4 th	Stone Masonry: Glossary of terms – natural bed, bedding planes, string course, corbel, cornice, block in course grouting, moulding, templates, corner stone, bond stone, throating, through stone, parapet, coping, pilasters and buttress		
6 th	1 st	Types of stone masonry: rubble masonry - random and coursed; Ashlar masonry, principles to be observed in construction of stone masonry walls		
	2 nd	Sessional Test -1		
	3 rd	Unit – 5: Arches and Lintels:Introduction		
	4 th	Meaning and use of arches and lintels, Glossary of terms used in arches and lintels - abutment, pier, arch ring, intrados, soffit, extrados, voussoirs, springer, springing line, crown, key stone,		
7 th	1 st	Glossary of terms used in arches and lintels skew back, span, rise, depth of an arch, haunch, spandril, jambs, bearing, thickness of lintel, effective span		
	2 nd	Arches:Types of Arches - Semicircular, segmental, elliptical and parabolic, flat, inverted and relieving		
	3 rd	Arches:Types of Arches - Stone arches and their construction, Brick arches and their construction		
	4 th	Lintels: Purpose of lintel, Materials used for lintels, Cast-in-situ and pre-cast lintels, Lintel along with sun-shade or chhajja		
8 th	1 st	Unit – 6: Doors, Windows and Ventilators:Introduction		
	2 nd	Glossary of terms with neat sketches		
	3 rd	Classification based on materials i.e. wood, metal and plastic and their suitability for different situations.		
	4 th	Different type of doors- panel door, flush door, glazed door, rolling shutter, steel door,		

		sliding door, plastic and aluminium doors		
9 th	1 st	Window – Panel window, glazed windows (fixed and openable) ventilators, sky light window,		
	2 nd	Louveres shutters, plastic and aluminium windows.		
	3 rd	Door and window frames – materials and sections, fixtures and fasteners, hold fasts		
	4 th	Unit – 7: Damp Proofing and Water Proofing: Introduction		
10 th	1 st	Dampness and its ill effects on bricks, plaster, wooden fixtures, metal fixtures and reinforcement, damage to aesthetic appearance, damage to heat insulating materials, damage to stored articles and health		
	2 nd	Sources of dampness - moisture penetrating the building from outside e.g. rainwater, surface water, ground moisture. Moisture entrapped during construction i.e. moisture in concrete, masonry construction and plastering work etc. Moisture which originates in the building itself i.e. water in kitchen and bathrooms etc.		
	3 rd	Damp proofing materials and their specifications: rich concrete and mortar, bitumen, bitumen mastic, polymer coating, use of chemicals		
	4 th	Damp proofing of basement, Ground floors, plinth and walls, water storage tank, kitchen, W.C., roof		
11 th	1 st	Unit – 8: Floors:Introduction		
	2 nd	Glossary of terms-floor finish, topping, under layer, base course, rubble filling and their purpose		
	3 rd	Types of floor finishes - concrete flooring, ceramic tile flooring, stone (marble and kota) flooring. Wooden flooring		
	4 th	Special emphasis on level/slope/reverse slope in bathrooms, toilets, kitchen, balcony and staircase		
12 th	1 st	Sessional Test -2		
	2 nd	Unit – 9:Roofs:Introduction Roofs and their types,Types of roofs, concept of flat, pitched and arched roofs		
	3 rd	Glossary of terms for pitched roofs - batten, eaves, fascia board, gable, hip, lap, purlin, rafter, rag bolt, valley, ridge, rain water gutter, anchoring bolts		
	4 th	False ceilings using gypsum, plaster boards, cellotex, fibre boards		
13 th	1 st	Unit – 10: Stairs:Introduction		
	2 nd	Glossary of terms: Staircase, winders, landing, stringer, newel, baluster, riser, tread, width of staircase, hand-rail, nosing, Classification of staircase on the basis of material – RCC, timber, steel, Aluminium.		
	3 rd			
	4 th	Planning and layout of staircase: Relations between rise and tread, determination of width of stair, landing etc, Various types of layout - straight flight, dog legged, open well,		

		quarter turn, half turn (newel and geometrical stairs), bifurcated stair, spiral stair		
14 th	1 st	Unit – 11: Surface Finishes:Introduction Plastering - classification according to use and finishes like plain plaster, grit finish, rough cast, pebble dashed, concrete and stone cladding etc., dubbing, proportion of mortars used for different plasters, techniques of plastering and curing		
	2 nd	Pointing - different types of pointing and their methods		
	3 rd	Painting - preparation of surface, primer coat and application of paints on wooden, steel and plastered wall surfaces		
	4 th	Importance of preparation of surfaces such as hacking, grooving etc before application of surface finishes		
15 th	1 st	Application of white washing, colour washing and distempering, polishing, application of cement and plastic paints, Selection of appropriate paints/finishes for interior and exterior surfaces		
	2 nd	Unit – 12: Anti Termite Measure :Introduction AntiTermite Treatment to Foundation, Masonary, RCC, Floors, Junction of walls and Floors.		
	3 rd	Treatment to wooden joinery ,Treatment to existing building		
	4 th	Sessional Test -3		
16 th		Revision of syllabus, display/Intimation of 3 rd Sessional marks, Academic evaluation-analysis of Sessionals.		

Lesson Plan

Name of the Faculty : _____ **Semester :** 3rd **L T P**
Subject : BC (PRACTICALS) **Discipline :** Civil Engineering **- - 2**
Lesson Plan Duration : _____

Week	Practical	Delivery Date of Practical		Whether the Lesson Plan Followed? Yes/No
		Expected	Actual	
1 st	Demonstration of tools and plants used in building construction			
2 nd	Demonstration of tools and plants used in building construction			
3 rd	Demonstration of tools and plants used in building construction			
4 th	To prepare Layout of a building: two rooms building with front verandah			
5 th	To prepare Layout of a building: two rooms building with front verandah			
6 th	Internal Viva Voce – 1			
7 th	To construct brick bonds (English bond only) in one, one and half and two brick thick: (a) Walls for L, T and cross junction (b) Columns			
8 th	To construct brick bonds (English bond only) in one, one and half and two brick thick: (a) Walls for L, T and cross junction (b) Columns			
9 th	Demonstration of following items of work at construction site by: a) Timbering of excavated trenching b) Laying damp proof courses			
10 th	Demonstration of following items of work at construction site by: c) Construction of masonry walls Internal Viva Voce – 2			
11 th	Demonstration of following items of work at construction site by: d) Laying of tile flooring on an already prepared lime concrete base			
12 th	Demonstration of following items of work at construction site by: e) Plastering and pointing exercise f) Constructing RCC work			
13 th	Demonstration of following items of work at construction site by: g) Pre-construction and post construction termite treatment of building and woodwork			
14 th	Demonstration of following items of work at construction site by: h) Interlocking tiles			
15 th	Internal Viva Voce – 3			

<u>Lesson Plan</u>			
Name of the Faculty :			Discipline :
Subject	CONSTRUCTION MATERIALS		Semester :
Lesson Plan Duration :	15 Weeks		Civil Engineering
			3rd
			L T
			3 - -
Week	Theory		Delivery Date of Lecture
	Lecture Day	Topic (including Assignments / Seminar / Group Discussion / Sessional Tests)	
1st	1 st	CH-1 Building Stones: Classification of Rocks: (General Review),Geological classification: Igneous, sedimentary and metamorphic rocks,Chemical classification,Physical classification.	Whether the Lesson Plan Followed? Yes/No
	2 nd	General characteristics of stones – Marble, Kota stone, Granite, Sand, Trap, Basalt stone, Lime stone and Slate	
	3 rd	Requirements of good building stones,Identification of common building stones,Various uses of stones in construction,Quarrying of stones by blasting and its effect on environment	
2nd	1 st	CH-2 Bricks and Tiles: Introduction to bricks,Raw materials for brick manufacturing and properties of good brick making earth,Manufacturing of bricks	
	2 nd	Preparation of clay (manual/mechanically),Moulding: hand moulding and machine moulding brick table; drying of bricks, burning of bricks	
	3 rd	Hoffman's Kiln), process of burning, Size and weight of standard brick; traditional brick, refractory brick, clay-flyash bricks, sun dried bricks, only line diagram of kilns	
3rd	1 st	Classification and specifications of bricks as per BIS: 1077,Testing of common building bricks as per BIS: 3495 Compressive strength test.	
	2 nd	water absorption – hot and cold water test, efflorescence, Dimensional tolerance, soundness test.	
	3 rd	ceiling, roofing and flooring tiles,Ceramic, terrazo and PVC tiles, : their properties and uses	
	1 st	Vitrified tiles, Paver blocks, interlocking tiles,Stacking of bricks and tiles at site	

4th	2 nd	CH-3 CEMENT: Introduction, raw materials		
	3 rd	Flow diagram of manufacturing of cement		
5th	1 st	Various types of Cements, their uses and testing: Ordinary portland cement, rapid hardening cement		
	2 nd	low heat cement, white and coloured cement, portland pozzolana cement		
	3 rd	Properties of cement		
6th	1 st	Sessional Test -1		
	2 nd	CH-4 Timber and Wood Based Products: Identification and uses of different types of timber: Teak, Deodar, Shisham, Sal, Mango, Kail, Chir, Fir, Hollock, Champ		
	3 rd	Market forms of converted timber as per BIS Code, 4.3 Seasoning of timber.		
7th	1 st	Purpose, methods of seasoning as per BIS Code		
	2 nd	Properties of timber and specifications of structural timber		
	3 rd	Defects in timber, decay in timber		
8th	1 st	Preservation of timber and methods of treatment as per BIS, Other wood based products		
	2 nd	Brief description of manufacture and uses: laminated board, gypsum board, block board, fibre board, hard board		
	3 rd	sunmica, plywood, veneers, nu-wood and study of the brand name.		
9th	1 st	study of cost of the wood based products available in the market, Cement Panel Board, Moulded Doors		
	2 nd	Varnishes: Introduction, purpose and use of paints		
	3 rd	Types, ingredients, properties and uses of oil paints, water paints and cement paints		
10 th	1 st	Covering capacity of various paints		
	2 nd	Types, properties and uses of varnishes		
	3 rd	Trade name of different products.		
11 th	1 st	Sessional Test -2		
	2 nd	CH-6 Metals: Introduction		
	3 rd	Ferrous metals: Composition, properties and uses of cast iron, mild steel,		
12 th	1 st	HYSD steel, high tension steel as per BIS.		
	2 nd	Commercial forms of ferrous, metals.		
	3 rd	Aluminium & Stainless Steel.		

13th	1 st	CH-7Miscellaneous Materials:Introduction		
	2 nd	various plastic products in buildings such as doors, water tanks and PVC pipes		
	3 rd	Fibre Sheets and their size and uses		
14th	1 st	Types and uses of insulating materials for sound and thermal insulation		
	2 nd	Construction chemicals like water proofing compound, epoxies, polymers		
	3 rd	Water proofing, termite proofing and fire resistance materials – types and uses		
15th	1 st	Sessional Test -3		
	2 nd	Materials used in interior decoration works like POP, methods of doing POP, PVC paneling		
	3 rd	Eco friendly materials for construction of buildings.		
16th	Revision of syllabus , Display/Intimation of 3rd Sessional marks, Academic evaluation -analysis of sessionals			

Lesson Plan

Subject : CM (PRACTICAL)

Semester : 3rd

L T P

Lesson Plan Duration :

Discipline : Civil Engineering

- - 2

Week	Practical	Delivery Date of Practical		Whether the Lesson Plan Followed? Yes/No
		Expected	Actual	
1 st	To identify the stones used in building works by visual examination			
2 nd	To identify the stones used in building works by visual examination			
3 rd	To determine the crushing strength of bricks			
4 th	To determine the crushing strength of bricks			
5 th	Internal Viva Voce – 1			
6 th	To determine the water absorption of bricks and efflorescence of bricks			
7 th	To determine the water absorption of bricks and efflorescence of bricks			
8 th	To identify various types of timbers such as: Teak, Sal, Chir, Shisham, Deodar, Kail & Hollock by visual examination only			
9 th	To identify various types of timbers such as: Teak, Sal, Chir, Shisham, Deodar, Kail & Hollock by visual examination only			
10 th	To identify various types of timbers such as: Teak, Sal, Chir, Shisham, Deodar, Kail & Hollock by visual examination only			
11 th	Internal Viva Voce – 2			
12 th	The students should submit a report work on the construction materials, covering water proofing material, cements, steel, paints and timber products available in the local market. They will also show the competitive study based upon the cost, brand name, sizes available in the local market.			
13 th	The students should submit a report work on the construction materials, covering water proofing material, cements, steel, paints and timber products available in the local market. They will also show the competitive study based upon the cost, brand name, sizes available in the local market.			
14 th	The students should submit a report work on the construction materials, covering water proofing material, cements, steel, paints and timber products available in the local market. They will also show the competitive study based upon the cost, brand name, sizes available in the local market.			
15 th	Internal Viva Voce – 3			
16 th	Revision of syllabus , Display /Intimation of 3rd Sessional marks, Academic evaluation -analysis of sessionals			

<u>Lesson Plan</u>				
Name of the Faculty :		Discipline :	Civil Engineering	
Subject	BUILDING DRAWING	Semester :	3rd	
Lesson Plan Duration :	15 Weeks			
			L T F	
			- - 3	
Week	Theory		Delivery Date of Lecture	Whether the Lesson Plan Followed?
	Lecture Day	Topic (including Assignments / Seminar / Group Discussion / Sessional Tests)		Yes/No
1st	1 st	Drawing No. 1 Introduction		
	2 nd	Details of spread footing foundations, load bearing and non-load bearing wall for given thickness of walls with the help of given data or rule of the thumb		
	3 rd	Drawing showing offsets, position of DPC		
2nd	1 st	The details of the concrete and brick apron have to be shown in the drawing.		
	2 nd	Drawing No. 2 Introduction		
	3 rd	Plans of 'T' and Corner junction of walls of 1 Brick, 1-1/2 Brick and 2 brick thick in English bond		
3rd	1 st	Plans of 'T' and Corner junction of walls of 1 Brick, 1-1/2 Brick and 2 brick thick in English bond		
	2 nd	Plans of 'T' and Corner junction of walls of 1 Brick, 1-1/2 Brick and 2 brick thick in English bond		
	3 rd	Drawing No. 3 Drawing plan, elevation of arches: circular arch, segmental arch		
4th	1 st	Drawing No. 3 Drawing plan, elevation of arches: circular arch, segmental arch		
	2 nd	Drawing No. 3 Drawing plan, elevation of arches: circular arch, segmental arch		
	3 rd	Drawing No. 4 Elevation, sectional plan and sectional side elevation of flush door, glazed door, panelled door with wire gauge shutter.		
5th	1 st	Drawing No. 4 Elevation, sectional plan and sectional side elevation of flush door, glazed door, panelled door with wire gauge shutter.		
	2 nd	Drawing No. 4 Elevation, sectional plan and sectional side elevation of flush door, glazed door, panelled door with wire gauge shutter.		

	3 rd	Drawing No. 5 Drawing plan, elevation of a small building by measurement and foundation detail and sectional elevation.		
6th	1 st	Sessional Test -1		
	2 nd	Drawing No. 5 Drawing plan, elevation of a small building by measurement and foundation detail and sectional elevation.		
	3 rd	Drawing No. 5 Drawing plan, elevation of a small building by measurement and foundation detail and sectional elevation.		
7th	1 st	Drawing No. 6 Drawing detailed plan, elevation and section of a two room residential building from a given line plan, showing details of foundations, roof and parapet		
	2 nd	Drawing No. 6 Drawing detailed plan, elevation and section of a two room residential building from a given line plan, showing details of foundations, roof and parapet		
	3 rd	Drawing No. 6 Drawing detailed plan, elevation and section of a two room residential building from a given line plan, showing details of foundations, roof and parapet		
8th	1 st	Drawing No. 6 Drawing detailed plan, elevation and section of a two room residential building from a given line plan, showing details of foundations, roof and parapet		
	2 nd	Drawing No. 7 Drawings of following floors-Wooden flooring Bonded cement concrete flooring Ceramic/vitrified tile flooring		
	3 rd	Drawing No. 7 Drawings of following floors-Wooden flooring Bonded cement concrete flooring Ceramic/vitrified tile flooring		
9th	1 st	Drawing No. 7 Drawings of following floors-Wooden flooring Bonded cement concrete flooring Ceramic/vitrified tile flooring		
	2 nd	Drawing No. 7 Drawings of following floors-Wooden flooring Bonded cement concrete flooring Ceramic/vitrified tile flooring		
	3 rd	Drawing No. 8 Drawing of flat roof, showing the heat/thermal insulation provisions.		
10 th	1 st	Drawing No. 8 Drawing of flat roof, showing the heat/thermal insulation provisions.		
	2 nd	Drawing No. 8 Drawing of flat roof, showing the heat/thermal insulation provisions.		

	3 rd	Drawing No. 8 Drawing of flat roof, showing the heat/thermal insulation provisions.		
11 th	1 st	Sessional Test -2		
	2 nd	Drawing No. 9 Drawing details of damp proofing arrangement of roofs and walls as per BIS Code. Show the rain water drainage arrangement also.		
	3 rd	Drawing No. 9 Drawing details of damp proofing arrangement of roofs and walls as per BIS Code. Show the rain water drainage arrangement also.		
12 th	1 st	Drawing No. 9 Drawing details of damp proofing arrangement of roofs and walls as per BIS Code. Show the rain water drainage arrangement also.		
	2 nd	Drawing No 10 Drawing Damp Proofing details in basement of buildings.		
	3 rd	Drawing No 10 Drawing Damp Proofing details in basement of buildings.		
13th	1 st	Drawing No 10 Drawing Damp Proofing details in basement of buildings.		
	2 nd	Drawing No 10 Drawing Damp Proofing details in basement of buildings.		
	3 rd	Drawing No.11 Drawing Damp proofing details in water/soil retaining structures.		
14th	1 st	Drawing No.11 Drawing Damp proofing details in water/soil retaining structures.		
	2 nd	Drawing No.11 Drawing Damp proofing details in water/soil retaining structures.		
	3 rd	Drawing No.11 Drawing Damp proofing details in water/soil retaining structures.		
15th	1 st	Sessional Test -3		
	2 nd	Evaluation and checking of drawing sheets		
	3 rd	Evaluation and checking of drawing sheets		
16th	Revision of syllabus , Display /Intimation of 3rd Sessional marks, Academic evaluation -analysis of sessionals			

<u>Lesson Plan</u>				
Name of the Faculty		Discipline :	Civil Engineering	
Subject	FLUID MECHANICS		Semester : 3rd	
Lesson Plan Duration :	15 Weeks			
			L T	
			3 - -	
Week	Theory		Delivery Date of Lecture	Whether the Lesson Plan Followed?
	Lecture Day	Topic (including Assignments / Seminar / Group Discussion / Sessional Tests)		Yes/No
1st	1 st	Unit – 1: Introduction Fluids: Real and ideal fluids, Fluid Mechanics		
	2 nd	Hydrostatics, Hydrodynamics, Hydraulics		
	3 rd	Unit – 2: Properties of Fluids Mass density, specific weight, specific gravity, viscosity		
2nd	1 st	Surface tension - cohesion, adhesion and, capillarity, vapour pressure and compressibility.		
	2 nd	Unit – 3: Hydrostatic Pressure Pressure, intensity of pressure, pressure head, Pascal's law and its applications		
	3 rd	Total pressure, resultant pressure, and centre of pressure.		
3rd	1 st	Unit- 4 :Measurement of Pressure :Atmospheric pressure, gauge pressure, vacuum pressure and absolute		
	2 nd	Piezometer, simple manometer and differential manometer		
	3 rd	Bourden gauge and dead weight pressure gauge		
4th	1 st	Unit -5 Fundamentals of Fluid Flow: Types of Flow: Steady and unsteady flow, laminar and turbulent flow, uniform and non-uniform flow		
	2 nd	Discharge and continuity equation (flow equation) {No derivation}		
	3 rd	Simple numerical problems.		
5th	1 st	Types of hydraulic energy: Potential energy		
	2 nd	kinetic energy		
	3 rd	pressure energy		
6th	1 st	Sessional Test -1		
	2 nd	Bernoulli's theorem; statement		
	3 rd	Description of bernoullis theorem(without proof of theorem)		
7th	1 st	Numerical problems.		
	2 nd	Unit-6 Flow Measurements: Brief description with simple numerical problems of Venturimeter and orificemeter		

	3 rd	Pitot tube ,Orifices		
8th	1 st	Mouthpieces & Current meters		
	2 nd	Notches and weirs		
	3 rd	Unit -7 Flow through Pipes: Definition of pipe flow; Reynolds number		
9th	1 st	laminar and turbulent flow - explained through Reynold's experiment		
	2 nd	Critical velocity and velocity distributions in a pipe for laminar flow		
	3 rd	Head loss in pipe lines due to friction		
10 th	1 st	sudden expansion in pipes		
	2 nd	sudden contraction, entrance, exit in pipes		
	3 rd	obstruction and change of direction (No derivation of formula)		
11 th	1 st	Sessional Test -2		
	2 nd	Simple numerical problems		
	3 rd	Hydraulic gradient line and total energy line		
12 th	1 st	Pipes in series and parallel		
	2 nd	Water hammer phenomenon and its effects (only definition and description)		
	3 rd	CH-8 Flow through open channels: Definition of an open channel, uniform flow and non-uniform flow		
13th	1 st	Discharge through channels using (i)Chezy's formula (no derivation) (ii)Manning's formula (no derivation)		
	2 nd	Most economical channel sections (no derivation, only simple numerical problems)(i) Rectangular(ii) Trapezoidal		
	3 rd	Head loss in open channel due to friction		
14th	1 st	CH-9 Hydraulic Pumps: Introduction		
	2 nd	Hydraulic pump		
	3 rd	Reciprocating pump		
15th	1 st	Sessional Test -3		
	2 nd	Numerical problems.		
	3 rd	Centrifugal pumps (No numericals and derivations) (may be demonstrated with the help of working models)		
16th	Revision of syllabus , Display /Intimation of 3rd Sessional marks, Academic evaluation -analysis of sessionals.			

Lesson Plan

Subject : **FLUID MECHANICS (PRACTICALS)**

Discipline : **Civil Engineering** **L** **T** **P**

Lesson Plan Duration : 15 Weeks

Semester : **3rd** - - **2**

Week	Practical	Delivery Date of Practical		Whether the Lesson Plan Followed? Yes/No
		Expected	Actual	
1 st	To verify Bernoulli's Theorem			
2 nd	To verify Bernoulli's Theorem			
3 rd	To determine coefficient of velocity (C_v), Coefficient of discharge (C_d) Coefficient of contraction (C_c) of an orifice and verify the relation between them			
4 th	To determine coefficient of velocity (C_v), Coefficient of discharge (C_d) Coefficient of contraction (C_c) of an orifice and verify the relation between them			
5 th	Internal Viva Voce – 1			
6 th	To perform Reynold's experiment			
7 th	To perform Reynold's experiment			
8 th	To verify loss of head in pipe flow due to a. Sudden enlargement b. Sudden contraction c. Sudden bend			
9 th	To verify loss of head in pipe flow due to a. Sudden enlargement b. Sudden contraction c. Sudden bend			
10 th	Internal Viva Voce – 2			
11 th	Demonstration of use of current meter and pitot tube			
12 th	Demonstration of use of current meter and pitot tube			
13 th	To determine coefficient of discharge of a rectangular notch and triangular notch			
14 th	To determine coefficient of discharge of a rectangular notch and triangular notch			
15 th	Internal Viva Voce – 3			

<u>Lesson Plan</u>			
		Discipline :	Civil Engineering
Subject :	STRUCTURAL MECHANICS		Semester : 3rd
Lesson Plan Duration :	15 Weeks		
			L T P
			4 - -
Week	Theory		Delivery Date of Lecture
	Lecture Day	Topic (including Assignments / Seminar / Group Discussion / Sessional Tests)	Whether the Lesson Plan Followed? Yes/No
1st	1 st	CH-1 Properties of Materials: Classification of materials, elastic materials, plastic materials, ductile materials, brittle materials.	
	2 nd	Introduction to tensile test, compressive test, impact test	
	3 rd	Fatigue test, torsion test on metals.	
	4 th	CH-2 Simple Stresses and Strains: Concept of stress, normal and shear stresses	
2nd	1 st	Concept of strain and deformation, longitudinal and transverse strain, poisson's ratio, volumetric strain	
	2 nd	Hooke's law, moduli of elasticity and rigidity, Bulk modulus of elasticity, relationship between the elastic constants.	
	3 rd	Stresses and strains in bars subjected to tension and compression. Extension of uniform bar under its own weight, stress produced in compound bars (two or tPeriodsee) due to axial load.	
	4 th	Stress-strain diagram for mild steel and HYSD steel, mechanical properties, factor of safety	
3rd	1 st	Temperature stresses and strains	
	2 nd	CH-3 Shear Force and Bending Moment: Concept of a beam and supports (Hinges, Roller and Fixed)	
	3 rd	Types of beams: simply supported, cantilever, propped, over hang, cantilever and continuous beams (only concept).	
	4 th	Types of loads (dead load, live load, snow load, wind load seismic load as per IS Codes etc) and types of loading (point, uniformly distributed and uniformly varying loads)	
4th	1 st	Concept of bending moment and shear force, sign conventions	
	2 nd	Bending Moment and shear force diagrams for cantilever, simply supported and overhanging beams subjected to concentrated, uniformly distributed	

	3 rd	Relationship between load, shear force and bending moment,		
	4 th	Point of maximum bending moment, and point of contraflexure		
5th	1 st	CH-4 Moment of Inertia: Concept of moment of inertia		
	2 nd	Second moment of area and radius of gyration		
	3 rd	Theorems of parallel axis		
	4 th	Theorems of perpendicular axis		
6th	1 st	Sessional Test -1		
	2 nd	Geometrical sections: rectangle, triangle, circle (<i>without derivations</i>)		
	3 rd	Second moment of area for L, T and I sections.		
	4 th	concept of section modulus		
7th	1 st	CH-5 Bending Stresses in Beams: Concept of pure/simple bending		
	2 nd	Assumptions made in the theory of simple bending		
	3 rd	Derivation and application of bending equation to circular cross-section, I section, T&L sections only		
	4 th	Moment of resistance		
8th	1 st	Calculations of bending stresses in simply supported beam		
	2 nd	CH-6 Shear Stresses in Beams Introduction		
	3 rd	Concept of shear stresses in beams		
	4 th	Shear stress distribution in rectangular section		
9th	1 st	Numerical problems		
	2 nd	Shear stress distribution in circular section.		
	3 rd	Shear stress distribution in I section.		
	4 th	Shear stress distribution in Tsections for S.S. beams		
10 th	1 st	Shear stress distribution in L sections for S.S. beams		
	2 nd	Numerical problems		
	3 rd	Numerical problems		
	4 th	CH-7 Slope and Deflection: Determination of slope		
11 th	1 st	Sessional Test -2		
	2 nd	Determination of deflection		
	3 rd	Moment Area Theorem for simply supported beam for pointed load		
	4 th	Moment Area Theorem for simply supported beam for U.D.L		
12 th	1 st	Numerical problems		
	2 nd	Numerical problems		
	3 rd	CH-8 Columns : Introduction		
	4 th	Theory of columns		
	1 st	Eulers and Rankine Formula		

13th	2 nd	Problem solving using Eulers and Rankine Formula		
	3 rd	Numerical problems		
	4th	Numerical problems		
14th	1 st	CH-9 Analysis of Trusses: Introduction		
	2 nd	Concept of a perfect frame.		
	3 rd	Concept of redundant and deficient frames		
	4th	Assumptions and analysis of trusses by: a)Method of joints		
15th	1 st	Assumptions and analysis of trusses by b)Method of sections		
	2 nd	Numerical problems		
	3 rd	Numerical problems		
	4th	Sessional Test -3		
16th	Revision of syllabus , Display /Intimation of 3rd Sessional marks, Academic evaluation -analysis of sessionals			

14 th	Verification of forces in a framedstructure			
15 th	Internal Viva Voce – 3			

Lesson Plan

Subject : **Surveying – I**

Discipline : **Civil Engineering**

L T P

Lesson Plan Duration : **15 Weeks**

Semester : **3rd**

3 - -

Week	Theory			Whether the Lesson Plan Followed? Yes/No
	Lecture Day	Topic (Including Assignments / e-lecture / Sessional Tests)	Delivery Date of Lecture	
1 st	1 st	Unit – 1: Introduction Basic principles of surveying		
	2 nd	Concept and purpose of surveying, measurements-linear and angular, units of measurements		
	3 rd	Instruments used for taking these measurements		
2 nd	1 st	classification based on surveying instruments		
	2 nd	Unit – 2: Chain surveying Purpose and principles of Chain Surveying		
	3 rd	Introduction, advantages and disadvantages		
3 rd	1 st	Direct and indirect ranging, offsets and recording of field notes		
	2 nd	Obstacles in Chain Surveying,		
	3 rd	Errors in Chain Surveying and their correction.		
4 th	1 st	Unit – 3: Compass surveying Purpose of compass surveying.		
	2 nd	Use of prismatic compass: Setting and taking observations		
	3 rd	Concept of following with simple numerical problems: a) Meridian - Magnetic and true, Arbitrary b) Bearing - Magnetic, True and Arbitrary		
5 th	1 st	Concept of following with simple numerical problems: c) Whole circle bearing and reduced bearing d) Fore and back bearing		
	2 nd	Magnetic dip and declination		
	3 rd	Local attraction - causes, detection, errors and corrections, problems on local attraction.		
6 th	1 st	SESSIONAL-1		
	2 nd	calculation of included angles in a compass traverse		
	3 rd	Simple Numerical Problems		

7 th	1 st	Unit – 4: Levelling Purpose of levelling, concept of a level surface, horizontal surface		
	2 rd	vertical surface, datum, reduced level and bench marks		
	3 rd	Identification of various parts of Dumpy level		
8 th	1 st	use of Dumpy level, Engineer' level		
	2 nd	Auto level: advantages and disadvantages, use of autolevel		
	3 rd	Concepts of line of collimation, axis of the bubble tube, axis of the telescope and vertical axis		
9 th	1 st	Levelling staff: single piece, folding type.		
	2 nd	Invar precision staff, telescopic.		
	3 rd	Temporary adjustment and permanent adjustment of dumpy level by two peg method.		
10 th	1 st	Concept of back sight and foresight.		
	2 nd	Concept of intermediate sight, change point.		
	3 rd	To determine reduced levels.		
11 th	1 st	Sessional Test – 2		
	2 nd	Level book and reduction of levels by Height of collimation method		
	3 rd	Level book and reduction of levels by Rise and fall method.		
12 th	1 st	Unit – 5: Plane Table Surveying Introduction		
	2 nd	Purpose of plane table surveying		
	3 rd	Equipment used in plane table survey		
13 th	1 st	Setting of a plane table: (a) Centering (b) Levelling (c) Orientation		
	2 nd	Methods of plane table surveying: Radiation,		
	3 rd	Methods of plane table surveying; Intersection		
14 th	1 st	Methods of plane table surveying: Traversing		

	2 nd	Concept of Resection.		
	3 rd	Concept of Two point and Three point problems (Concept only)		
15 th	1 st	Sessional Test – 3		
	2 nd	Errors in plane table survey and precautions to control them.		
	3 rd	Testing and adjustment of plane table and alidade		
16 th		Revision of syllabus , Display /Intimation of 3rd Sessional marks, Academic evaluation -analysis of sessionals.		

Lesson Plan

Subject : SURVEYING – I (PRACTICALS)

Discipline : Civil Engineering L T P

Lesson Plan Duration : 15 Weeks

Semester : 3rd - - 5

Week	Practical	Delivery Date of Practical		Whether the Lesson Plan Followed? Yes/No
		Expected	Actual	
1 st	Chain surveying: i) a) Ranging a line b) Chaining a line and recording in the field book c) Taking offsets - perpendicular and oblique (with a tape only) d) Setting out right angle with a tape			
2 nd	Chain surveying: ii) Chaining of a line involving reciprocal ranging iii) Chaining a line involving obstacles to ranging iv) Chain Survey of a small area.			
3 rd	Compass Surveying: i) a) Study of prismatic compass b) Setting the compass and taking observations c) Measuring angles between the lines meeting at a point			
4 th	Compass Surveying: i) a) Study of prismatic compass b) Setting the compass and taking observations c) Measuring angles between the lines meeting at a point			
5 th	Sessional Test-1			
6 th	Levelling: i) a) Study of dumpy level and levelling staff b) Temporary adjustments of various levels c) Taking staff readings on different stations from the single setting and finding differences of level between them			
7 th	Levelling: ii) a) To find out difference of level between two distant points by shifting the instrument			

8 th	Levelling: iii) Longitudinal and cross sectioning of a road/railway/canal			
9 th	Levelling: iv) Setting a gradient by dumpy and auto-level			
10 th	Sessional Test -2			
11 th	Plane Table Surveying: i) a) Study of the plane table survey equipment b) Setting the plane table c) Marking the North direction d) Plotting a few points by radiation method			
12 th	Plane Table Surveying: ii) a) Orientation by - Trough compass - Back sighting b) Plotting few points by intersection, radiation and resection method			
13 th	Plane Table Surveying: iii) Traversing an area with a plane table (at least five lines)			
14 th	Layout of Buildings (from given drawing of two room residential building) by use of surveying instruments.			
15 th	Sessional Test -3			
16 th	Revision of syllabus, display/Intimation of 3rd Sessional marks, Academic evaluation-analysis of Sessionals.			

LESSON PLAN

DISCIPLINE :Civil

SEMESTER: First

SUBJECT : APPLIED CHEMISTRY (Theory)

LESSON PLAN DURATION : 15 WEEKS

WORK LOAD PER WEEK :Lectures= 3+3

WEEK	THEORY	
	LECTURE DAY	TOPIC (WITH ASSIGNMENT & TESTS)
1	1	Introduction of Atomic Structure, Bohr's model of atom
	2	Dual character of matter: derivation of de-Broglie's equation Heisenberg's Principle of Uncertainty, modern concept of atomic structure
	3	Definition of orbitals shapes of s, p and d-orbitals
2	4	Quantum numbers and their significance
	5	Aufbau and Pauli's exclusion principles Hund's rule
	6	Electronic configuration of elements up to atomic number 30.
3	7	Periodic Table Modern Periodic Law and Periodic table, Classification of elements into s, p
	8	Classification of elements into d, f-blocks, metals, non-metals and metalloids
	9	Chemical bonding: cause of bonding, ionic bond Physical properties of ionic,
4	10	Covalent bond, and metallic bond (electron sea or gas model), Physical properties
	11	Doubt Quarries and Revision
	12	Metals: mechanical properties of metals such as conductivity, elasticity, strength and stiffness, luster, hardness, toughness, ductility, malleability
1st Sessional test		
5	13	Metals: mechanical properties of metals such as, brittleness, and impact resistance and their uses. Definition of a mineral, ore, gangue, flux and slag
	14	Metallurgy of iron from haematite using blast furnace Commercial varieties of iron
	15	Alloys: definition, necessity of making alloys, composition, properties and uses of duralumin and steel. Heat treatment of steel- normalizing, annealing, quenching, tempering.
6	16	Doubt Quarries and Revision
	17	Solutions: definition, expression of the concentration of a solution in percentage (w/w, w/v and v/v), normality, molarity and molality and ppm.
	18	Simple problems on solution preparation
7	19	Arrhenius concept of acids and bases, strong and weak acids and bases, pH value of a solution and its significance, pH scale
	20	Simple numerical problems on pH of acids and bases.
	21	Hard and soft water, causes of hardness of water, types of hardness- temporary and permanent hardness

8	22	Expression of hardness of water, ppm unit of hardness; disadvantages of hard water;removal of hardness
	23	Removal of temporary hardness by boiling and Clark's method; removal of permanent hardness of water by Ion-Exchange method
	24	Boiler problems caused by hard water: scale and sludge formation, priming and foaming, caustic embrittlement; water sterilization by chlorine, UV radiation and RO
9	25	Doubt Quarries and Revision
	26	Fuels: definition and classification of higher and lower calorific values, units of calorific value
	27	Characteristics of an ideal fuel. Petroleum: composition and refining of petroleum
2nd Sessional Test		
10	28	Gaseous fuels: composition, properties and uses of CNG, PNG, LNG, LPG
	29	Relative advantages of liquid and gaseous fuels over solid fuels. Scope of hydrogen as future fuel.
	30	Lubricants-Functions and qualities of a good lubricant, classification of lubricants
11	31	Lubrication mechanism (brief idea only)
	32	Physical properties (brief idea only) of a lubricant: oiliness, viscosity, viscosity index, flash and fire point, ignition temperature, pour point.
	33	Doubt Quarries and Revision
12	34	Polymers and Plastics: definition of polymer, classification, addition and condensation polymerization
	35	Preparation properties and uses of polythene, PVC, Nylon-66
	36	Preparation properties and uses Bakelite; definition of plastic
13	37	Thermoplastics and thermosetting polymers; natural rubber and neoprene, other synthetic rubbers (names only).
	38	Corrosion: definition, dry and wet corrosion
	39	Factors affecting rate of corrosion, methods of prevention of corrosion—hot dipping
14	40	Prevention of corrosion metal cladding, cementation, quenching, cathodic protection methods
	41	Introduction and application of nanotechnology: nano-materials
	42	Classification, applications of nanotechnology in various
3rd Sessional test		
15	43	Doubt Quarries and Revision
	44	Revision and discussion of previous year Q. Papers
	45	Revision and discussion of previous year Q. Papers

LESSON PLAN

DISCIPLINE :Civil
SEMESTER :1st
SUBJECT :English

& communication skill **LESSION PLAN**

DURATION 15

WEEKS

WORK LOAD PER WEEK : Lectures (Theory) 02+02+02+02+02+02+02+02+02+02,

WEEK	Theory	
	LECTURE DAY	TOPIC (WITH ASSIGNMENT & TESTS)
1	1	Techniques of reading: Skimming and Scanning, Extensive and Intensive Reading: Textual Study
	2	Homecoming – R.N. Tagore
2	3	Life Sketch of Sir Mokshagundam Visvesvarayya,
	4	Nouns
3	5	Pronouns
	6	Significance, essentials and effectiveness of Written Communication
4	7	Revision
	8	Revision
1st sessional test		
5	9	Life Sketch of Dr. Abdul Kalam
	10	Concept and Process of Communication
6	11	Types of Communication (Verbal Communication)
	12	Barriers to communication
7	13	Articles
	14	Verbs(Main and Auxiliary)
8	15	Speaking Skill: Significance and essentials of Spoken Communication
	16	Listening Skill: Significance and essentials of Listening, Revision
2nd sessional test		
9	17	Narayan Murthy's speech at LBSNA
	18	Narayan Murthy's speech at LBSNA
10	19	Tenses
	20	Tenses
11	21	Notice Writing
	22	Notice Writing
12	23	Official Letters and E-mails
	24	Official Letters and E-mails
3rd sessional test		
13	25	Frequently-used Abbreviations used in Letter-Writing
	26	Paragraph Writing
14	27	Paragraph Writing
	28	Netiquettes
15	29	Revision
	30	Revision

LESSON PLAN

DISCIPLINE : Civil

SEMESTER: First

SUBJECT :English and communication skill (Practical)

LESSON PLAN DURATION : 15 WEEKS

WORK LOAD PER WEEK :Practicals = 2

WEEK	Practical
1	Reading Practice of lessons in the Lab Activity classes.
	Comprehension exercises of unseen passages along with the lessons prescribed.
	Vocabulary enrichment and grammar exercises based on the selected readings
2	Conversation Practice
3	Chapter-1.3 Comprehension Passage
4	Chapter 1.4 Comprehension Passages
5	Chapter 1.5 Comprehension Passages
6	Reading aloud Newspaper headlines and important articles
7	Introducing oneself, others and leave- taking(talking about yourself)
8	Just a minute (JAM) sessions: Speaking extempore for one minute on given topics
9	Just a minute (JAM) sessions: Speaking extempore for one minute on given topics
10	Narayan Murthy's speech at LBSNA
11	Offering-Responding to offers
12	Apologizing & Forgiving, Complaining;
13	Talking about likes and dislikes
14	Self-introduction Mock
	Situational Conversation
15	Revision
	Revision

LESSON PLAN

Discipline: Civil Engineering.

Semester: First

Subject: Engineering Graphics

Lesson Plan Duration: 16 Weeks

Teaching Load: Practical - 2Turns/week (3 Hrs./ Turn)

WEEK	TURN	TOPIC	Covered on Date
1	1	UNIT I 1. Introduction to Engineering Drawing and Graphics 1.1 Introduction to use and care of drawing instruments, drawing materials, layout and sizes of drawing sheets and drawing boards.	
	2	1.2 Symbols and conventions a) Conventions of Engineering Materials, Sectional Breaks and Conventional lines. b) Civil Engineering Sanitary fitting symbols c) Electrical fitting symbols for domestic interior installations.	
2	3		
	4	1.3 Geometrical construction-geometrical figures such as triangles, rectangles, circles, ellipses and curves, hexagons, pentagons bisecting a line and arc, division of line and circle with the help of drawing instruments.	
3	5		
	6	2. Technical Lettering of Alphabet and Numerals Definition and classification of lettering, Free hand (of height of 5,8,12 mm) and instrumental lettering (of height 20 to 35 mm) : upper case and lower case, single and double stroke, vertical and inclined (Gothic lettering) at 75 degree to horizontal and with suitable height to width ratio 7:4	
4	7		
	8	3. Dimensioning 3.1 Necessity of dimensioning, method and principles of dimensioning (mainly theoretical instructions). 3.2 Dimensioning of overall sizes, circles, threaded holes, chamfered surfaces, angles, tapered surfaces, holes, equally spaced on P.C.D., countersunk holes, counter bored holes, cylindrical parts, narrow spaces and gaps, radii, curves and arches.	
5	9		
	10	4. Scales 4.1 Scales –Needs and importance (theoretical instructions), Type of scales, Definition of Representative Fraction (R.F.) and Length of Scale. 4.2 To draw/construct plain and diagonal scales.	
6	11		
	12	UNIT II 1. Orthographic Projections 1.1 Theory of orthographic projections	

7	13	1.2 Three views of orthographic projections of different objects of given pictorial view of a block in 1st and 3rd angle.	
	14	1.3 Projection of Points in different quadrant	
8	15	1.4 Projection of Straight Line (1st angle) i. Line parallel to both the planes. ii. Line perpendicular to any one of the reference plane and parallel to others iii. Line inclined to any one of the references and parallel to another plane.	
	16	1.5 Projection of Plane – Different lamina like square rectangular, triangular, circle and Hexagonal pentagon. Trace of planes (HT and VT).	
9	17	1.6 Identification of surfaces.	
	18	2. Sectioning 2.1 Importance and salient features 2.2 Drawing of full section, half section, partial or broken out sections, Offset sections, revolved sections and removed sections (theoretical only).	
10	19		
	20	2.3 Orthographic sectional views of different objects.	
11	21	UNIT III 1. Introduction of projection of right solids such as prism & pyramid (square, Pentagon, Hexagonal) cube, cone & cylinder (Axes perpendicular to H.P and parallel to V.P.)	
	22	2. Introduction of sections of right solids - Section planes, Sections of Hexagonal prism, pentagon pyramid, cylinder and cone (Section plane parallel to anyone reference planes and perpendicular to V.P. and inclined to H.P.)	
12	23	3. Development of Surfaces – Development of lateral surfaces of right solids like cone, cylinder, pentagonal prism, pyramid and hexagonal pyramid (Simple problems)	
	24	UNIT IV 1. Fundamentals of isometric projections and isometric scale.	
13	25	2. Isometric views of different laminas like circle, pentagon and hexagon.	
	26	3. Isometric views of different regular solids like cylinder, cone, cube, cuboid, pyramid and prism.	
14	27	4. Isometric views from given different orthographic projections(front, side and top view)	
	28	UNIT V	
15	29	Introduction to AutoCAD Basic introduction and operational instructions of various commands in AutoCAD.	
	30	Drawing of different objects on AutoCAD (given pictorial/isometric view of a block).	
16	31		
	32	Viva	

LESSON PLAN (First Sem)**Subject: Applied Maths****Discipline: Civil****Work Load Per week: Lectures 4+4+4+4+4****Lesson Plan Duration :15 Weeks**

Week	DAY	Theory (Topics)
1	1	Definition of complex number, real and imaginary parts
	2	Polar and Cartesian Form and their inter conversion
	3	Conjugate of a complex number
	4	Modulus/argument of complex No
2	1	Addition subtraction, multiplication and division of complex number.
	2	Numericals complex number And Assignment-I
	3	Fundamental Rules of Logarithms
	4	Logarithm Conversation Log to exp and vice versa
3	1	Numericals Logarithms
	2	Numericals And Assignment-II
	3	Factorial
	4	Permutation, combination
4	1	Binomial theorem expansion
	2	General Term, Middle Term/ Co- eff of x^n
	3	Binomial theorem for any index And Assignment-III
	4	Revision
1st Sessional test		
5	1	Matrices: Define/Types
	2	Addition subtraction of Matrices
	3	Multiplication of Matrices
	4	Determinants (up to 2 order) by laplace method
6	1	Solution of equation by Cramer's Rule And Assignment-IV
	2	Trigonometry: Concept of angle: measurement of angle
	3	Conversion of angles
	4	Fundamental Identities, Allied angles
7	1	Addition and subtraction formula
	2	Addition and subtraction formula Numericals
	3	Transformation formula
	4	Numericals
8	1	Numericals
	2	Application: Angle of elevation/height/distance
	3	Numericals And Assignment-V
	4	Revision
2nd Sessional test		
9	1	Point: Distance Formula
	2	Mid Point Formula
	3	Area of Triangle
	4	Straight line: Slope of a line
10	1	Equation of straight line in various standards forms
	2	Equation of straight line in various standards forms
	3	Intersection of two straight lines, concurrency of lines
	4	Angle between two straight lines, parallel and perpendicular lines
11	1	Perpendicular distance formula,
	2	Conversion of general form of equation to the various forms And Assignment-VI
	3	Circle: General equation of a circle

	4	Centre and radius of circle
12	1	Find Standard equation of circle and centre and radius
	2	Find general equation of circle and centre and radius
	3	To find the equation of a circle, given three points lying on it
	4	To find the equation of a circle given coordinates of endpoints of a diameter, Assignment-VII
13	1	Theoretical Introduction of MATLAB
	2	Addition and subtraction of values Trigonometric functions
	3	Addition and subtraction of values Inverse Trigonometric functions
	4	General Practice And Assignment-VIII
3rd Sessional test		
14	1	Practice of Previous Question Papers
	2	Practice of Previous Question Papers
	3	Practice of Previous Question Papers
	4	Practice of Previous Question Papers
15	1	Revision
	2	Revision
	3	Revision
	4	Revision

LESSON PLAN

DISCIPLINE : Civil
SEMESTER :FIRST
SUBJECT : APPLIED PHYSICS

LESSION PLAN DURATION : 15 WEEKS

WORK LOAD PER WEEK : Lectures= 2+2Practicals = 4+4+2

WEEK	THEORY		PRACTICAL	
	LECTURE DAY	TOPIC (WITH ASSIGNMENT & TESTS)		TOPIC
1	1	Definition of physics and physical quantities, Fundamental and	1	Familiarization of measuring instruments-vernier caliper, screw gauge, spherometer
	2	Units-fundamental and derived units, System of Units, FPS, CGS		
2	3	MKS,SI, Dimensions, Dimensional Formula	2	To find the diameter of a solid cylinder using vernier caliper
	4	SI unit and dimensions of some physical quantities		
3	5	Dimensional equations and principle of homogeneity	3	To find the internal diameter and depth of a beaker using verniercaliper
	6	Applications of DA, Checking correctness, Conversion of Units		
4	7	Scalar and vector quantities definition, example, types,	4	Checking of files and viva voce
	8	Vector addition-triangle and parallelogram law and		
5	9	Force, its units and resolution of force, Newton's laws of motion	5	To find the diameter of wire using screw gauge
	10	Linear momentum, impulse and law of conservation of		
6	11	Angular displacement, Angular velocity, Angular acceleration,	6	To find thickness of paper using screw gauge.
	12	Relation between linear and angular velocity, Centripetal and		
7	13	banking of roads, Rotational Motion- definition, examples	7	Checking of files & viva-voce
	14	Definitionoftorque,angularmomentum,momentofinertiaanditsp hysicalsignificance		
8	15	Work-definition, formula, unit and types of work, zero ,positive and negative work examples	8	To determine the thickness of glass strip using a spherometer
	16	Friction-definition and daily life examples , Power-definition, formula and units		
9	17	Energy-definition,units and transformation of energy	9	To determine the radius of curvature of a given spherical
	18	Kinetic energy, potential energy- definition,examples,formulaand derivation		
10	19	Law of conservation of energy with derivation	1	To verify parallelogram law of
	20	Simplenumericalproblemsbasedon formulaofPowerandEnergy		
11	21	Elasticityandplasticity-definition,deformingforce,restoring force,exampleof elasticandplastic	1	To determine atmospheric pressure using fortin's barometer
	22	Definition of stress and strain, Hookes law, modulus of elasticity	1	
12	23	Pressure- definition,atmosphericpressure,gaugepressure,absolutepressure	1	To determine force constant of a spring using hookes law
	24	Surfacetension- definition,SIunit,applicationsofsurfacetension,effectoftemperat	2	

13	25	Viscosity:definition,unit,examples,effectoftemperatureonviscosity	1 3	Checking of files & viva-voce
	26	Heat and temperature- Definition,Units, Difference between heat and temperature		-----
14	27	Principle and working of mercury thermometer, Problem discussions unit 4	1 4	To measure room temperature with the help of thermometer
	28	Modes of transfer of heat-conduction,convection,radiation, Propertiesofheatradiation		-----
15	29	Different scales of temperature and their relationship	1	Revision of practicals
	30	Problem discussion, Preparation of end semester exams		-----

Lesson Plan

		Discipline :	Civil Engineering
Subject :	PLUMBING SERVICES		Semester : 1st
Week	Theory		Delivery Date of Lecture
			Whether the Lesson Plan Followed?
			Yes/No
	Lecture Day	Topic (including Assignments / Seminar / Group Discussion / Sessional Tests)	
1 st	1 st	CH-1 Plumber's Tools Selection, use and care of tools required for plumbing work, such as threading die	
	2 nd	bit brace & Ratchet brace Pipe wrench, spanner set, Pipe cutter, pipe vice	
2 nd	1 st	Hacksaw, chisel, files and other common hand tools, bench drilling machine, soldering iron	
	2 nd	CH-2 Pipes and Pipe Fitting Selection and use of different pipes like GI Pipes, Plastic pipes,	
3 rd	1 st	PVC pipes & HDPE pipes, Cast iron pipes, Plumbing symbols	
	2 nd	Bends, Elbows, Sockets, Tees, Unions	
4 th	1 st	Pipe cutting, Pipe bending, Pipe Threading, Pipe joints	
	2 nd	Pipe fitting, Alignment of pipes	
	3 rd	Branching of pipes, Safety precautions	
Sessional Test -1			
5 th	1 st	CH-3 Water Supply System Sources of water	
	2 nd	Rainwater harvesting, Water supply systems in a town; Water distribution systems	
6 th		Distribution reservoirs; Pumps	
	1 st	Valves; Fire hydrants, Storage of water in buildings; Types of tanks; Laying water supply pipe lines	
	2 nd	CH-4 Domestic Drainage Drainage system (two pipe, one pipe, single stack and other systems)	
7 th	1 st	Trap, Cesspool, Sceptic tank, Cleaning blocked pipes and drains	
	2 nd	Laying sanitary and sewer pipes, Manholes	

8th	1 st	Inspection and testing (pressure & leakage test, Testing straightness of pipes, ball test etc.)		
	2 nd	Fixing accessories, Problems in drainage and their solution		
		Sessional Test -2		
9th	1 st	CH-5 Sanitary Appliances Flush toilet, Squat toilet, Wash basin		
	2 nd	Sink, Floor traps, Urinal, Bathtub		
10 th	1 st	Shower, Bidet		
	2 nd	Mixing tap		
11 th		Popup waste		
	1 st	CH-6 Heating System : Introduction		
	2 nd	Heat transfer		
12 th	1 st	Water heater, Geyser		
	2 nd	Domestic hot water supply system		
13th	1 st	Central heating		
	2 nd	Solar water heater		
		Sessional Test -3		
14th	1 st	Revision of syllabus		
	2 nd	Revision of syllabus		
15th	1 st	Practice set		
	2 nd	Practice set		
16th	Revision of syllabus , Display /Intimation of 3rd Sessional marks			

