

Name of the Faculty : KRISHAN CHANDRA
Discipline : Civil Engg.
Semester : 4th Sem.
Subject : CONCRETE TECH.
Lesson Plan Duration : 15 weeks

Week	Theory		Practical	
	Lecture Day	Topic (including assignment / test)	Practical Day	Topic
1.	1.	Introduction, Definition of concrete	1.	To determine the Physical properties of cement as per IS Codes.
	2.	Uses of concrete in comparison to other building materials.		
	3.	Ingredients of concrete-cement, physical properties of cement.		
2.	1.	Different Types of cement as per IS CODE.	2.	To determine Flakiness and elongation Index of coarse aggregates.
	2.	Classification of Aggregates according to size and shape.		
	3.	Characteristics of Aggregate, Grading of aggregate.		
3.	1.	Water –quality requirements as per IS 456-2000	3.	To determine Silt in fine aggregate.
	2.	Water cement Ratio		
	3.	Water cement Ratio Law		
4.	1.	Workability, factors affecting workability, Measurement of workability.	4.	Determination of Specific gravity and water absorption of aggregates.
	2.	Slump Test		
	3.	Compaction factor test, Vee Bee test		
5.	1.	Recommended slump	5.	Determination of Bulk density and void of aggregates.
	2.	Revision		
	3.	Properties of concrete in plastic state		
6.	1.	Workability	6.	To determine Surface moisture in fine aggregates by displacement method.
	2.	Segregation		
	3.	Bleeding and Harshness		
7.	1.	Strength and Durability	7.	Determination of Particle size distribution of fine, coarse and all in aggregates by sieve analysis
	2.	Impermeability, Dimensional changes.		
	3.	Objectives of mix design, different grades of concrete		
8.	1.	Adjustment on site for different factors	8.	Viva-voce
	2.	Difference between nominal & controlled mix		
	3.	Controlled mix design		
9.	1.	Admixtures for improving performance of concrete.	9.	To determine necessary Adjustment for bulking of fine aggregates.

	2.	Admixtures for conc.(continued)		
	3.	Concreting under special conditions		
10.	1.	Under water concreting	10.	To determine workability by Slump test
	2.	Cold and hot water concreting		
	3.	Ready mix conc., Fiber reinforced conc.		
11.	1.	Polymer conc., Fly ash conc.	11.	To verify the Effect of water, aggregate/cement ratio on slump
	2.	Storing of cement in a warehouse , at site, Effect of storage on strength		
	3.	Storing of aggregate, Batching		
12.	1.	Mixing- hand mixing, machine mixing	12.	Compaction factor test for workability.
	2.	Transportation of concrete		
	3	Placement of concrete		
13.	1.	Compaction of concrete	13.	Non destructive test on concrete.
	2.	Curing of concrete		
	3.	Joints in concrete		
14.	1.	Defects in concrete	14.	Tests for Compressive strength of concrete cubes.
	2.	Non- destructive tests on concrete		
	3.	Revision		
15.	1.	Revision	15.	Viva –voce
	2.	Revision		
	3.	Class Test		

Name of the Faculty : VISITING FACULTY
Discipline : Civil Engg.
Semester : 4th Sem.
Subject : Water Supply and Waste Water Engg.
Lesson Plan Duration : 15 weeks

Week	Theory		Practical	
	Lecture Day	Topic (including assignment / test)	Practical Day	Topic
1.	1.	Necessity of water supply system	1.	To determine Turbidity of water sample
	2.	Quality of water		
	3.	Demand and variation in demand		
	4.	Per capita consumption		
	5.	Population forecasting		
2.	1.	Revision	2.	To determine Dissolved oxygen of water sample
	2.	Quality of water		
	3.	Meaning of pure water and methods of analysis of water		
	4.	Physical test on water		
	5.	Chemical and bacteriological test on Water		
3.	1.	Maintenance of purity of water	3.	To determine pH value of water sample
	2.	Water treatment		
	3.	Sedimentation		
	4.	Coagulation		
	5.	Filtration		
4.	1.	Necessity of Disinfection of water	4.	To perform Jar test for coagulation
	2.	Functions of aeration fountain, mixer,		
	3.	Flocculator, filters, chlorination chamber		
	4.	Revision		
	5.	Types of pipes		
5.	1.	Types of joints in different pipes	5.	To determine BOD of given sample
	2.	Sluices, air valves, reflux valves, relief valves,		
	3.	Scour valve, bib cock, stop cock,		
	4.	Fire hydrant, water meter		
	5.	Distribution of water		
6.	1.	System of water supply	6.	To determine Residual chlorine in water
	2.	Maintenance of water system		
	3.	Revision		
	4.	Class Test		
	5.	Laying out pipes, alignment of pipes		
7.	1.	Precautions in laying of pipes	7.	To determine Conductivity of water and total

	2.	Lowering and jointing of pipes		dissolved solids
	3.	Testing of pipe lines		
	4.	Building water supply		
	5.	Water supply fixtures and installations		
8.	1.	Purpose of Sanitation, disposal of waste	8.	Viva-voce
	2.	Terminology in waste water engg.		
	3.	Collection and conveyance of sewage		
	4.	Surface drains, Types of sewage		
	5.	Sewerage system, types		
9.	1.	Manholes, drop manhole	9.	To Study of installation of various fittings in water supply
	2.	Tank hole, catch basin, inverted siphon		
	3.	Flushing tanks, grease traps		
	4.	Storm regulators, ventilating shafts		
	5.	Laying and construction of sewers		
10.	1.	Setting and alignment of sewers	10.	To Study and demonstrate Jointing of various pipes
	2.	Excavation, bedding, jointing, back filling		
	3.	Construction of surface mains		
	4.	Properties of sewage		
	5.	Analysis of sewage		
11.	1.	Physical, chemical and bacteriological	11.	To demonstrate Laying of SW pipes for sewers
	2.	Revision		
	3.	Natural methods of sewerage disposal		
	4.	General composition of sewage		
	5.	Disposal by dilution		
12.	1.	Self- purification of streams	12.	Visit to a field lab
	2.	Disposal by land treatment		
	3.	Class test		
	4.	Sewage treatment, principle		
	5.	Activated sludge process		
13.	1.	Screens, grit chambers,	13.	To test house drainage
	2.	Skimming tanks, plain sedimentation tank		
	3.	Clarifiers, control beds,		
	4.	Filters		
	5.	Oxidation ponds		
14.	1.	Building drainage	14.	Visit to site
	2.	Aims and requirements of building drainage		
	3.	Sanitary fittings		
	4.	Traps, seals, causes		
	5.	Breaking of water seals		
15.	1.	Revision	15.	Viva-voce
	2.	Revision		
	3.	Revision		
	4.	Class test		
	5.	Discussion of class test		

Name of the Faculty : GURMINDER PAL SINGH
Discipline : Civil Engg.
Semester : 4th Sem.
Subject : Irrigation Engg.
Lesson Plan Duration : 15 weeks

Week	Theory		Practical	
	Lecture Day	Topic (including assignment / test)	Practical Day	Topic
1.	1.	Definition and necessity of irrigation		
	2.	History of development of irrigation in India.		
	3.	Principal crops in India & their water requirements		
	4.	Crop season, soil water		
2.	1.	Duty, delta and base period, their relationship.		
	2.	GCA,CCA, intensity of irrigation		
	3.	Hydrological cycle		
	4.	Rain gauges		
3.	1.	Average rainfall methods		
	2.	Runoff, factor affecting runoff		
	3.	Hydrograph, unit hydrograph		
	4.	Methods of irrigation		
4.	1.	Flow irrigation its advantages and limitations.		
	2.	Lift irrigation		
	3.	Sprinkler irrigation		
	4.	Drip irrigation		
5.	1.	Comparison of diff. methods		
	2.	Canals, Classification		
	3.	Appurtenances of a canal system		
	4.	Test		
6.	1.	Sketches of diff. canal sections[unlined]		
	2.	Canal lining- advantages & disadvantages		
	3.	Breaches and their control		
	4.	Maintenance of Lined and unlined canals.		
7.	1.	Tube well irrigation		
	2.	Comparison with canal irrigation		
	3.	Tube well- diff. terms		
	4.	Yield of a well		
8.	1.	Types of tube wells, method of boring,		
	2.	Development of a well		
	3.	Water harvesting techniques		
	4.	Recharge pits and recharge wells		

9.	1.	Classification of dams		
	2.	Earthen dams, causes of failure		
	3.	Gravity dams-types, X-section of a dam		
	4.	Method of construction		
10.	1.	Concept of Small and micro dams		
	2.	Spillway and energy dissipation		
	3.	Canal Head works and Regulatory works.		
	4.	Test		
11	1.	Discussion on test		
	2.	General layout		
	3.	Functions of Diff. parts of head works		
	4.	Difference between weir and barrage.		
12	1.	Revision.		
	2.	Cross drainage works		
	3.	Functions and necessity of the following types: aqueduct, super passage, level crossing ,inlet and outlet, pipe crossing.		
	4.	DO		
13	1.	Sketches of above C/D works		
	2.	Definitions of the following Hydraulic Structures with sketches :Falls		
	3.	Cross and head regulator		
	4.	Outlets, escapes		
14	1.	River training works		
	2.	Guide banks, Levees		
	3.	Groynes and spurs		
	4.	Pitched island, cutoff		
15	1.	Water logging, causes and effects		
	2.	Detection and prevention, Reclamation of soil		
	3.	Drains , ground water recharge		
	4.	Test		

Name of the Faculty : DHEERAJ SAHNI
Discipline : Civil Engg.
Semester : 4th Sem.
Subject : Surveying
Lesson Plan Duration : 15 weeks

Week	Theory		Practical	
	Lecture Day	Topic (including assignment / test)	Practical Day	Topic
1.	1.	Contouring	1.	Preparing a Contour plan by radial line method
	2.	Concept, purpose, contour interval,	2.	-do-
2.	1.	Characteristics of contouring, methods of contouring	1.	Preparing a Contour plan by method of squares
	2.	Interpolation of contours, uses of contour maps,	2.	-do-
3.	1.	Computation of earthwork	1.	Preparing a contour plan of Road/Railway track/canal by taking cross sections.
	2.	Theodolite surveying	2.	-do-
4.	1.	Different parts of a theodolite	1.	Basic about a theodolite
	2.	Operations of a theodolite	2.	Study of a transit vernier theodolite, Temp. adjustment of a theodolite
5.	1.	Horizontal and vertical angle	1.	Reading of a vernier and working out the least count, measurement of horizontal angles by repetition and reiteration methods.
	2.	Prolonging a line, Bearing of a line	2.	Measurement of vertical angles
6.	1.	Traversing, Plotting a traverse	1.	Measurement of magnetic bearing of a line
	2.	Concept of coordinates	2.	Plotting a closed traverse with a theodolite
7.	1.	Errors in theodolite survey	1.	-do-
	2.	Heights of objects	2.	To find the height of objects with theodolite
8.	1.	Tachometric surveying	1.	Revision practice of theodolite
	2.	Methods of Tachometry	2.	-do-
9.	1.	General principals of stadia tachometry	1.	Viva-voce
	2.	Numericals	2.	
10.	1.	Simple circular curve, need & definition	1.	Setting out simple circular curve with offsets from the chords produced
	2.	Elements of simple circular curve	2.	-do-
11.	1.	Setting out of simple circular curve by linear measurements	1.	Setting out simple circular curve with one theodolite

	2.	By tangential angles, numerical	2.	-do-
12.	1.	Transition Curve, need, length of a transition curve	1.	Use of minor instruments
	2.	Setting out transition curve	2.	Use of minor instruments
13.	1.	Vertical curve	1.	Use of minor instruments
	2.	EDM, Planimeter	2.	Demonstration of digital instruments
14.	1.	Total station, GIS,GPS	1.	Demonstration of Total Station
	2.	Minor instruments	2.	Field Visit
15.	1.	Use of planimeter	1.	Viva-voce and practice
	2.	Sessional Test	2.	Viva-voce and practice

Name of the Faculty : RAKESH KUMAR
Discipline : Civil Engg.
Semester : 4th Sem.
Subject : RCC
Lesson Plan Duration : 15 weeks

Week	Theory		Practical	
	Lecture Day	Topic (including assignment / test)	Practical Day	Topic
1.	1.	Concept of R.C.C.		
	2.	Reinforcing materials, Loading		
	3.	Working stress method		
	4.	Limit state method		
	5.	Shear and development length		
2.	1.	Max. shear stress		
	2.	Numericals		
	3.	Basics of singly reinforced beam		
	4.	Neutral axis, balanced beam,		
	5.	Under reinforced and over reinforced		
3.	1.	MOR, Numericals		
	2.	Numericals		
	3.	Design of singly reinforced beam		
	4.	Numericals		
	5.	Numericals		
4.	1.	Concept of limit state method		
	2.	Partial factors and design loads		
	3.	Design of singly reinforced beam by limit state method.		
	4,5	Numericals		
5.	1,2,3,4	Numericals		
	5.	Test		
6.	1.	Doubly reinforced beam by LSM		
	2,3,4,5	Numericals		
7.	1.	T- beam		
	2.	L- beam		
	3,4	Numericals		
	5.	Revision		
8.	1.	One way slab by LSM		

	2,3, 4,5	Numericals		
9.	1.	Two way slab by Limit state method.		
	2,3, 4,5	Numericals		
10.	1.	Revision Test Discussion of Class Test		
	2.			
	3.			
	4.			
	5.			
11.	1.	Axially Loaded Column		
	2.	Classification of Columns		
	3.	Effective length of column		
	4.	Reinforcement in columns		
	5.	Design of axially loaded square column		
12.	1.	Numericals		
	2.	Design of circular column		
	3.	Numericals		
	4.			
	5.			
13.	1.	Concept of prestressing , different methods		
	2.	Advantages and disadvantage of prestressing		
	3.	Losses in prestress		
	4.	Revision		
	5.	Revision		
14.	1.	Revision		
	2.			
	3.			
	4.			
	5.			
15.	1.	Revision Test Discussion		
	2.			
	3.			
	4.			
	5.			

Name of the Faculty : M.P.SINGH
Discipline : Civil Engg.
Semester : 4th Sem.
Subject : Civil Engg. Drawing
Lesson Plan Duration : 15 weeks

Week	Theory		Practical	
	Lecture Day	Topic (including assignment / test)	Practical Day	Topic
1.			1.	X-section of Standard types of open drains.
			2.	X-section of earthenware and RCC Sewer pipes.
2.			3.	X-section of masonry sewers[Circular and Egg shaped]
			4.	Detailed section of floor trap , gully trap
3.			5.	Detailed plan and section of an inspection chamber.
			6.	Detailed plan and section of a manhole
4.			7.	Detailed plan & X-section of a Domestic septic tank.
			8.	Detailed plan & X-section of a soak pit
5.			9.	X-section through the external wall of lavatories at Ground and First Floor.
			10.	-do-
6.			11.	Plan of a bathroom showing positions of various fittings.
			12.	Draw Sectional elevation of a two storey building showing details of one pipe system and two pipe system
7.			13.	Draw Sectional elevation of a two storey building showing details of one pipe system and two pipe system
			14.	Test
8.			15.	Layout plan of sewage treatment plant for a residential area
			16.	Reading of working drawings
9.			17.	Reading of working drawings
			18.	L-section of a channel
10.			19.	Typical X-sections of various canal sections

			20.	-do-
11.			21.	Plan of a canal head works
			22.	Typical L-section of a weir
12.			23.	X-section of an earthen dam
			24.	-do-
13.			25.	X-section of a tube-well
			26.	-do-
14.			27.	Layout and X-section of rain water harvesting system
15.			29.	Test
			30.	Viva-voce