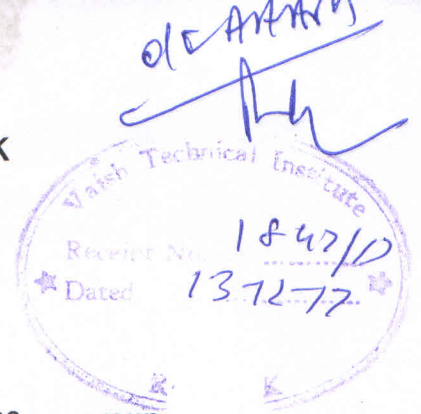


VAISH TECHNICAL INSTITUTE, ROHTAK
Lesson Plan

Name of the Faculty : VIRENDER SINGH
 Discipline : CIVIL Engg.
 Semester : IVth
 Subject : Concrete Technology
 Lesson Plan Duration : Jan-Apr 2018



Work Load (Lecture/Practical) per week : Lectures-03, practicals -02 per group

Week	Theory		Practical	
	Lecture day	Topic (Including assignment / test)	Practical Day	Topic
1st	1	Chapter 1. Introduction Definition of concrete uses of concrete in comparison to other building material	1	To determine the physical properties of cement as per IS Codes
	2	Chapter 2. Ingredients of Concrete Cement: physical properties of cement; different types of cement as per IS Codes Aggregates		
	3	Classification of aggregates according to size and shape Characteristics of aggregates: Particle size and shape, surface texture, specific gravity of aggregate		
2nd	4	Bulk density, water absorption, surface moisture, bulking of sand deleterious materials soundness	2	To determine flakiness and elongation index of coarse aggregates
	5	Grading of aggregates: coarse aggregate, fine aggregate; All-in-aggregate; fineness modulus; interpretation of grading charts		
	6	Water: Quality requirements as per IS:456-2000		
3rd	7	Chapter3. Water Cement Ratio Hydration of cement, principle of water-cement ratio	3	To determine flakiness and elongation index of coarse aggregates
	8	Duff Abram's Water-cement ratio law: Limitations of water-cement ratio law, Limitations of water-cement ratio law and its effects on strength of concrete		
	9	Chapter4. Workability Workability factors affecting workability, Measurement of workability		

4th	10	slump test, compacting factor and Vee Bee consistometer; Recommended slumps for placement in various conditions as per IS :456-2000/SP-23	4	Determination of specific gravity and water absorption of aggregates
	11	Revision		
	12	Assignment No.1 : 1.Characteristics of Aggregates, F.M. of Aggregates, Duff Abram's Water-cement ratio law		
5th	13	Sessional Test No.1	5	Determination of bulk density and voids of aggregates
	14	Chapter5. Properties of Concrete Properties in plastic state		
	15	Workability, Segregation, Bleeding and Harshness		
6th	16	Properties in hardened state: Strength, Durability, Impermeability, Dimensional changes	6	To determine surface moisture in fine aggregate by displacement method
	17	Chapter 6. Proportioning for Normal Concrete Objectives of mix design		
	18	introduction to various grades as per IS:456 2000; proportioning for nominal mix design as prescribed by IS 456-2000		
7th	19	Adjustment on site for: Bulking of fine aggregate, water absorption of aggregate, workability	7	Determination of particle size distribution of fine, coarse and all in aggregate by sieve analysis (grading of aggregate)
	20	Difference between nominal and controlled concrete Introduction to IS-10262-2009-Code for controlled mix design		
	21	Chapter7. Introduction to Admixtures		
8th	22	Revision	8	To determine necessary adjustment for bulking of fine aggregate
	23	Assignment No.2: Adjustment at site for bulking of sand, Difference between nominal and controlled concrete, Admixture		
	24	Sessional Test No.2		
9th	25	Chapter8. Special Concretes (only features) Concreting under special conditions	9	To determine workability by slump test
	26	difficulties and precautions before, during and after concreting, Cold weather concreting		
	27	Ready mix concrete, Fibre reinforced concrete, Polymer Concrete, Silica fume concrete, Fly ash concrete		

10th	28	Chapter9.Concreting Operations Storing of Cement, Storing of cement in a warehouse	10	To verify the effect of water, fine aggregate/coarse aggregate ratio and aggregate/Cement ratio on slump
	29	Storing of cement at site, Storing of cement in a warehouse, Effect of storage on strength of cement		
	30	Storing of Aggregate: Storing of aggregate at site, Batching (to be shown during site visit)		
11th	31	Batching of Cement, Batching of aggregate by: Volume, using gauge box (farma) selection of proper gauge	11	Compaction factor test for workability
	32	Weight spring balances and batching machines		
	33	Measurement of water, Mixing, Hand mixing		
12th	34	Machine mixing - types of mixers, capacities of mixers, choosing appropriate size of mixers, operation of mixers	12	Non destructive test on concrete by rebound hammer
	35	Maintenance and care of machines, Transportation of concrete: Transportation of concrete using: wheel barrows, transit mixers, chutes, belt conveyors, pumps, tower crane and hoists etc		
	36	Placement of concrete, Checking of form work, shuttering and precautions to be taken during placement		
13th	37	Compaction, Hand compaction, Machine compaction - types of vibrators, internal screed vibrators, and form vibrators, Selection of suitable vibrators for different situations	13	Non destructive test on concrete by ultrasonic pulse velocity test
	38	Finishing concrete slabs - screeding, floating and trowelling, Curing		
	39	Objectives of curing, methods of curing like ponding, membrane curing, steam curing, chemical curing, Duration for curing and removal of form work		

14th	40	Objectives of curing, methods of curing like ponding, membrane curing, steam curing, chemical curing, Duration for curing and removal of form work	14	Tests for compressive strength of concrete cubes for different grades of concret
	41	Jointing: Location of construction joints, treatment of construction joints, expansion joints in buildings - their importance and location		
	42	Chapter10;Importance and methods of non-destructive tests (introduction only) non-destructive tests		
15th	43	Revision	15	Revision
	44	Assignment No.3 Curing, Objectives of curing, Cold weather concreting, Compaction, Fibre reinforced concrete, Readymix concrete, comparision between machine mixing and hand mixing of concrete		
	45	Sessional Test No.3		