

* Name of the Faculty :	sarita sharma	(theory) and (Practical)		
Discipline :		Civil Engineering		
Semester :		4th		
Subject:		Concrete Technology		
Lesson Plan Duration :		15 weeks (from march, 2023 to june,2023)		
Week	Theory		Practical	
	Lecture day	Topic (including assignment/test)	Practical Day	Topic
1st	1st	Introduction: Definition of concrete, properties of concrete		
	2nd	uses of concrete in comparison to other building materials.		To determine the physical properties of cement as per IS Codes
	3rd	Advantages & Disadvantages of concrete	1	
	Ingredients of Concrete			
	4th	Cement: physical properties of cement; different types of cement as per IS Codes		
2nd	5th	Aggregates: Classification of aggregates according to size and shape		
	6th	Characteristics of aggregates: Particle size and shape, surface texture, specific gravity of aggregate; bulk density, water absorption, surface moisture,		To determine flakiness and elongation index of coarse aggregates
	7th	bulking of sand, deleterious materials soundness ,Grading of aggregates: coarse aggregate,	2	
	8th	fine aggregate; All-in-aggregate; fineness modulus; interpretation of grading charts		
3rd	9th	Water: Quality requirements as per IS:456-2000		
	Water Cement Ratio			
	10th	Hydration of cement, principle of water-cement ratio,		To determine silt in fine aggregate
	11th	Duff Abram's Water-cement ratio law	3	
	12th	Limitations of water-cement ratio law and its effects on strength of concrete		

4th	13th	Rivision		
	14th	Rivision		
	Properties of Concrete			Determination of specific gravity and water absorption of aggregates
	15th	Workability factors affecting workability,	4	
	16th	Measurement of workability: slump test,		
5th	17th	Assignements given based on samples question papers		
	18th	Sessional Week		
	19th			
	20th			
6th	21st	compacting factor and Vee Bee consistometer	5	Determination of bulk density and voids of aggregates
	22nd	Recommended slumps for placement in various conditions as per IS:456-2000/SP-23		
	23rd	Properties in plastic state:Workability		
	24th	Segregation		
7th	25th	Bleeding and Harshness		To determine surface moisture in fine aggregate by displacement
	26th	Properties in hardened state:	6	
	27th	Strength, Durability		
	28th	Impermeability,		
8th	29th	Dimensional changes		
	Concrete Mis Design			
	30th	Objectives of mix design, introduction to various grades as per IS:456- 2000; proportioning for nominal mix design as prescribed by IS 456-2000	7	Determination of particle size distribution of fine, coarse and all in aggregate by sieve analysis (grading of aggregate)
	31st	Adjustment on site for: Bulking of fine aggregate, water absorption of aggregate, workability		
	32nd	Difference between nominal and controlled concrete		
9th	33rd	Introduction to IS-10262-2009- Code for controlled mix design		
	Introduction to Admixtures			
	34th	Introduction to Admixtures (chemicals and minerals) for improving performance of concrete		To determine necessary adjustment for bulking of fine aggregate
	35th	Introduction to Admixtures (chemicals and minerals) for improving performance of concrete	8	
	36th	Introduction to Admixtures (chemicals and minerals) for improving performance of concrete		

10th	37th	Assignments given based on samples question papers		
	38th	Sessional Week	9	To determine workability by slump test:
	39th			
	40th			
	Special concretes			
11th	41st	Concreting under special conditions, difficulties and precautions before, during and after concreting		To verify the effect of water, fine aggregate/coarse aggregate ratio and aggregate/Cement ratio on slump
	42nd	Ready mix concrete		
	43rd	Fibre reinforced concrete	10	
	44th	Polymer Concrete and Fly ash concrete		
12th	45th	Silica fume concrete		
	46th	Storing of Cement: Storing of cement in a warehouse ,Storing of cement at site , Effect of storage on strength of cement , Determination of warehouse capacity for storage of Cement		Compaction factor test for workability
	47th	Storing of Aggregate: Storing of aggregate at site. Batching: Batching of Cement Batching of aggregate by: Volume, using gauge box (farma) selection of proper gauge box Weight spring balances and batching machines	11	
	48th	Measurement of water. Mixing: Hand mixing Machine mixing - types of mixers, capacities of mixers, choosing appropriate size of mixers, operation of mixers Maintenance and care of machines		

13th	49th	Transportation of concrete: Transportation of concrete using: wheel barrows, transit mixers, chutes, belt conveyors, pumps, tower crane and hoists etc. Placement of concrete: Checking of form work, shuttering and precautions to be taken during placement		
	50th	Compaction: Hand compaction Machine compaction - types of vibrators, internal screed vibrators and form vibrators Selection of suitable vibrators for different situations	12	Non destructive test on concrete by: a) Rebound Hammer Test b) Ultrasonic Pulse Velocity Test
	51st	Finishing concrete slabs - screeding, floating and trowelling,		
	52nd	steam curing, chemical curing Duration for curing and removal of form work, Jointing: Location of construction joints, treatment of construction joints, expansion joints in buildings - their importance and location		
14th	53rd	Defects in concrete: Identification of and methods of		
	54th	Assignments given based on samples question papers		
	55th	Sessional Week		
	56th			
15th	57th			
	58th	Revision	13	Tests for compressive strength of concrete cubes for different
	59th	Revision		
	60th	Revision		