GOVERNMENT POLYTECHNIC, PURI
DEPARTMENT OF CIVIL ENGINEERING

Discipline: **CIVIL ENGG.**	Semester: 6TH	Name of the Teaching Faculty: - **Mrs. MADHUSMITA SAHOO**
Subject: **CONCREAT TECHNOLOGY (Th 4)**	No. of days/per week class allotted: 04	Semester From date:10.03.2022 To Date: 10.06.2022 No. of Weeks:14
PRE-REQUISITE	Basic knowledge about concrete technology.	
COURSE OUTCOMES	1. Describe functions and characteristics of the concrete constituents. 2. Prescribe test requirements and methods for fresh and hardened concrete 3. Design concrete mix 4. Comprehend concrete production and inspection techniques 5. Acquaint themselves with special concrete preparation and application 6. Know the concrete deteriorating agencies and methods towards durability improvement and repair	

Week	Class day	Theory topics	Delivery Method
1ST	1ST	**1.0 Concrete as a construction material:** 1.1 Grades of concrete.	Whiteboard
	2ND	1.2 Advantages and disadvantages of concrete.	Whiteboard
	3RD	**Quiz and assignment**	Whiteboard
	4TH	**2 Cement :** 2.1 Composition, hydration of cement.	Whiteboard
2ND	1ST	water cement ratio and compressive strength	Whiteboard
	2ND	Fineness of cement, setting time.	Whiteboard
	3RD	Soundness, types of cement.	Whiteboard
	4TH	**Quiz and assignment**	Whiteboard
3RD	1ST	**3 Aggregate, Water and Admixtures:** 3.1 Classification and characteristics of aggregate,	Whiteboard
	2ND	fineness modulus, grading of aggregate,I.S.383	Whiteboard
	3RD	3.2 Quality of water for mixing and curing.	Whiteboard
	4TH	3.3 Important functions, classification of admixtures.	Whiteboard
4TH	1ST	Accelerating admixtures, retarding admixtures.	Whiteboard
	2ND	water reducing admixtures, air containing admixtures.	Whiteboard
	3RD	**Quiz and assignment**	Whiteboard
	4TH	**4.0 Properties of fresh concrete:** Concept of fresh concrete, workability	Whiteboard
5TH	1ST	Slump test, Compacting factor test,	Whiteboard
	2ND	V-bee consistency test	Whiteboard
	3RD	Flow test, requirement of workability	Whiteboard
	4TH	**Quiz and assignment**	Whiteboard
6TH	1ST	**5 Properties of hardened concrete:** 5.1 Cube and cylinder compressive strengths .	Whiteboard
	2ND	Flexural strength of concrete,	Whiteboard
	3RD	stress-strain and elasticity, phenomena of creep and shrinkage.	Whiteboard
	4TH	permeability, durability of concrete, sulphate, chloride and acid attack on concrete, efflorescence	Whiteboard
7TH	1ST	**Quiz and assignment**	Whiteboard
	2ND	**6 Concrete mix Design :** 6.1 a) Introduction b) Data or input required for mix design.	Whiteboard
	3RD	6.2 Nominal mix concrete &design mix concrete.	Whiteboard

	4TH	6.3 Basic consideration for concrete mix design, Methods of proportioning concrete mix – I.S Code method of mix design(I.S.10262)	Whitebo
8TH	1ST	**Quiz and assignment**	Whitebo
	2ND	**7 Production of concrete:** 7.1 Batching of materials, mixing of concrete materials.	Whiteboard
	3RD	Transportation, placing of concrete.	Whiteboard
	4TH	compaction of concrete (vibrators), Curing of concrete.	Whiteboard
9TH	1ST	Formwork-requirements and types ,stripping of forms.	Whiteboard
	2ND	**Quiz and assignment**	Whiteboard
	3RD	**8. Inspection and Quality Control of Concrete:** 8.1 Quality control of Concrete as per I.S.45.	Whiteboard
	4TH	Factors causing the variations in the quality of concrete	Whiteboard
10TH	1ST	8.2 Mixing, Transporting, Placing &curing requirements of Concrete as per I.S.456.	Whiteboard
	2ND	8.3 Inspection and Testing as per Clause 17 of IS:456.	Whiteboard
	3RD	8.4 Durability requirements of Concrete as per I.S:456.	Whiteboard
	4TH	**Quiz and assignment**	Whiteboard
11TH	1ST	**9. Special Concrete:** 9.1 Introduction to ready mix concrete	Whiteboard
	2ND	High performance concrete, silica fume concrete, shot-crete concrete or gunitting	Whiteboard
	3RD	**Quiz and assignment**	Whiteboard
	4TH	**10.0 Deterioration of concrete and its prevention:** 10.1 Types of deterioration	Whiteboard
12TH	1ST	Prevention of concrete deterioration	Whiteboard
	2ND	Corrosion of reinforcement ,Effects and prevention	Whiteboard
	3RD	**Quiz and assignment**	Whiteboard
	4TH	**11.0 Repair technology for concrete structures:** 11.1 Symptom, cause	Whiteboard
13TH	1ST	Prevention and remedy of defects during construction	Whiteboard
	2ND	Cracking of concrete due to different reasons. repair of cracks for different purposes	Whiteboard
	3RD	selection of techniques, polymer based repairs.	Whiteboard
	4TH	Common types of repairs.	Whiteboard
14TH	1ST	Revision	Whiteboard
	2ND	Revision	Whiteboard

LEARNING RESOUCES:

1. .CONCRETE TECHNOLOGY –M.S Shetty & A.K. jain
2. . CONCRETE TECHNOLOGY-M.L.Gambhir

WEBSITE RESOUCES:

Concrete Technology - NPTEL
https://nptel.ac.in › courses

Madhusmita Sahoo (10/03/22)
SIGNATURE OF CONCERNED FACULTY

Smitha 10.03.2022
SIGNATURE OF HOD

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