GOVERNMENT POLYTECHNIC, PURI
DEPARTMENT OF CIVIL ENGINEERING

Discipline: CIVIL ENGG.	Semester: 3RD	Name of the Teaching Faculty: **Mrs. Subhashree Sahoo & Nityananda Behera**
Subject: CIVIL ENGG. LAB-I (PR-1)	No. of days/per week class allotted: 06	Semester From date: 01.10.2021 To Date: 08.01.2022 No. of Weeks:15
PRE-REQUISITE	Basic knowledge about building materials.	
COURSE OUTCOMES	CO1: Use Universal testing machine to determine the stress-strain relation in steel. CO2: Carry out tests to determine cement characteristics and strength CO3: Investigate properties of aggregates CO4: Conduct tests to determine concrete workability and compressive strength CO5: To perform non-destructive tests on concrete CO6:To conduct strength tests on different types of bricks	

Week	Class day	Practical topics	Delivery Method
1ST	1ST	1.Test on Steel 1.1Determination of Young's Modulus of steel in a tensile testing machine	Whiteboard
	2ND	Determination of Young's Modulus of steel in a tensile testing machine	Demonstration
	3RD	Determination of Young's Modulus of steel in a tensile testing machine	Demonstration
	4TH	2. Tests on Cement, Sands, Bricks, Blocks & Aggregates 2.1 Determination of fineness of Cement by sieving.	Whiteboard
	5TH	Determination of fineness of Cement by sieving.	Demonstration
	6TH	Determination of fineness of Cement by sieving.	Demonstration
2ND	1ST	**Viva -voce**	
	2ND	2.2 Determination of normal Consistency , Setting time.	Whiteboard
	3RD	Determination of normal Consistency	Demonstration
	4TH	Determination of normal Consistency	Demonstration
	5TH	2.3 Determination of soundness of Cement by Le-Chatelier apparatus.	Whiteboard
	6TH	Determination of soundness of Cement by Le- Chatelier apparatus.	Demonstration
3RD	1ST	Determination of soundness of Cement by Le- Chatelier apparatus.	Demonstration
	2ND	2.4 Determination of Compressive Strength of cement.	Whiteboard
	3RD	Determination of Compressive Strength of cement.	Demonstration
	4TH	Determination of Compressive Strength of cement.	Demonstration
	5TH	Determination of Compressive Strength of cement.	Demonstration
	6TH	2.5 Determination of Compressive Strength of Burnt clay, Fly Ash Bricks and Blocks	Whiteboard
4TH	1ST	Determination of Compressive Strength of Burnt clay ,Fly Ash Bricks and Blocks	Demonstration
	2ND	Determination of Compressive Strength of Burnt clay, Fly Ash Bricks and Blocks	Demonstration
	3RD	**Viva -voce**	
	4TH	2.6 Grading of Fine & Coarse aggregate by sieving for concrete.	Whiteboard
	5TH	Grading of Fine & Coarse aggregate by sieving for concrete.	Demonstration
	6TH	Grading of Fine & Coarse aggregate by sieving for concrete.	Demonstration
5TH	1ST	2.7 Determination of Specific Gravity and Bulking of sand.	Whiteboard
	2ND	Determination of Specific Gravity and Bulking of sand.	Demonstration
	3RD	Determination of Specific Gravity and Bulking of sand.	Demonstration
	4TH	**Viva -voce**	
	5TH	2.8 Determination of Specific Gravity and Bulk density of coarse aggregate.	Whiteboard
	6TH	Determination of Specific Gravity and Bulk density of coarse aggregate.	Demonstration

	1ST	Determination of Specific Gravity and Bulk density of coarse aggregate.	Demonstration
	2ND	2.9 Grading of Road Aggregates.	Whiteboard
	3RD	Grading of Road Aggregates.	Demonstration
	4TH	Grading of Road Aggregates.	Demonstration
	5TH	**Viva -voce**	
	6TH	2.10 Determination of Flakiness, Elongation of Road aggregates.	Whiteboard
7TH	1ST	Determination of Flakiness	Demonstration
	2ND	Determination of Flakiness	Demonstration
	3RD	2.11 Determination of Crushing Value Test of aggregates.	Whiteboard
	4TH	Determination of Crushing Value Test of aggregates.	Demonstration
	5TH	Determination of Crushing Value Test of aggregates.	Demonstration
	6TH	**Viva -voce**	
8TH	1ST	2.12 Los-Angeles Abrasion Test of aggregate.	Whiteboard
	2ND	Los-Angeles Abrasion Test of aggregate.	Demonstration
	3RD	Los-Angeles Abrasion Test of aggregate.	Demonstration
	4TH	2.13 Impact test of aggregate.	Whiteboard
	5TH	Impact test of aggregate.	Demonstration
	6TH	Impact test of aggregate.	Demonstration
9TH	1ST	**Viva -voce**	
	2ND	Determination of soundness test of road aggregates.	Whiteboard
	3RD	Determination of soundness test of road aggregates.	Demonstration
	4TH	Determination of soundness test of road aggregates.	Demonstration
	5TH	Determination of soundness test of road aggregates.	Demonstration
	6TH	Determination of soundness test of road aggregates.	Demonstration
10TH	1ST	**Viva -voce**	
	2ND	II. CONCRETE LABORATORY 3.1 Determination of Compressive Strength of concrete cubes.	Whiteboard
	3RD	Determination of Compressive Strength of concrete cubes.	Demonstration
	4TH	Determination of Compressive Strength of concrete cubes.	Demonstration
	5TH	Determination of Compressive Strength of concrete cubes.	Demonstration
	6TH	Determination of Compressive Strength of concrete cubes.	Demonstration
11TH	1ST	Determination of Compressive Strength of concrete cubes.	Demonstration
	2ND	3.2 Determination of Workability of concrete by: a) Slump Cone method	Whiteboard
	3RD	Determination of Workability of concrete by: a) Slump Cone method	Demonstration
	4TH	Determination of Workability of concrete by: a) Slump Cone method	Demonstration
	5TH	Determination of Workability of concrete by: a) Slump Cone method	Demonstration
	6TH	Determination of Workability of concrete by: a) Slump Cone method	Demonstration
12TH	1ST	Determination of Workability of concrete by: a) Slump Cone method	Demonstration
	2ND	**Viva -voce**	
	3RD	Determination of Workability of concrete by: b) Compaction Factor method.	Whiteboard
	4TH	Determination of Workability of concrete by: b) Compaction Factor method.	Demonstration
	5TH	Determination of Workability of concrete by: b) Compaction Factor method.	Demonstration
	6TH	Determination of Workability of concrete by: b) Compaction Factor method.	Demonstration
13TH	1ST	Determination of Workability of concrete by: b) Compaction Factor method.	Demonstration
	2ND	Determination of Workability of concrete by: b) Compaction Factor method.	Demonstration

	3RD	3.3 Non Destructive tests on Concrete. a) Demonstration on Rebound hammer	Whiteboard
	4TH	Non Destructive tests on Concrete: a) Demonstration on Rebound hammer	Demonstration
	5TH	Non Destructive tests on Concrete: a) Demonstration on Rebound hammer	Demonstration
	6TH	Non Destructive tests on Concrete: a) Demonstration on Rebound hammer	Demonstration
14TH	1ST	**Viva -voce**	
	2ND	Non Destructive tests on Concrete: b) Ultrasonic Pulse Velocity measuring Instrument.	Whiteboard
	3RD	Non Destructive tests on Concrete: b) Ultrasonic Pulse Velocity measuring Instrument.	Demonstration
	4TH	Non Destructive tests on Concrete: b) Ultrasonic Pulse Velocity measuring Instrument.	Demonstration
	5TH	Non Destructive tests on Concrete: b) Ultrasonic Pulse Velocity measuring Instrument.	Demonstration
	6TH	**Viva -voce**	
15TH	1ST	PRACTICE CLASS	
	2ND	PRACTICE CLASS	
	3RD	PRACTICE CLASS	
	4TH	PRACTICE CLASS	
	5TH	PRACTICE CLASS	
	6TH	PRACTICE CLASS	

LEARNING RESOUCES:

01. . Civil Engineering laboratory Practice-I - Dr. M.R. Samal
02. Concrete Manual Laboratory Manual For Quality of Concrete - M. L. Gambhir
03. Highway material testing Laboratory manual- S.K.Khanna & C.E.G.Justo

WEBSITE RESOUCES:

01. https://youtu.be/hNNilk-OKaw(NCTEL)

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