



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
Shri Vaishnav Institute of Technology and Science
Choice Based Credit System (CBCS) in Light of NEP-2020
Civil Engineering Department
Vocational Course

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*	L	T	P	CREDITS
VOCE101	Vocational	Building Materials and Quality of Water	60	20	20	30	20	2	0	4	4

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit.

***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs):

Student will be able to

1. Develop an understanding of the standard aspects of building materials.
2. Explore different water treatment technologies and strategies for ensuring safe and potable water supply.

Course Outcomes (COs):

Student will be able to

1. Understand the properties and characteristics of various building materials.
2. Learn about the properties of fresh and hardened concrete.
3. Evaluate the quality of water based on regulatory standards and guidelines.

Unit – 1

5 Hrs.

Building Materials – Bricks - Manufacturing, Characteristic, Classification, Standard Specifications, Different types of tests on bricks for construction purpose – Shape and size, Water absorption test, efflorescence test, crushing strength test.

Unit – 2

6 Hrs.

Introduction to Cement and Test of Cements – Types, Grade and Standard specifications of Cement, Different types of tests on cement for construction purpose - fineness of cement by sieve analysis, Consistency, initial and final setting time using Vicat Apparatus, Compressive strength test of cement.

Unit – 3

6 Hrs.

Fine and Coarse Aggregate – Standard specifications, particle size distribution of coarse aggregate using sieve analysis, specific gravity of coarse and fine aggregate, mechanical test of coarse aggregate, bulking of sand.

Unit – 4

6 Hrs.

Concrete – Introduction, Grades and standard specification of concrete, Different types of tests on fresh and hardened concrete for construction purpose - workability of concrete, compressive - strength test of concrete, NDT test using rebound hammer.

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Unit – 5

7 Hrs.

Quality of Water – Characteristics of water – physical, chemical, and biological; Indian Standards for drinking water, pH value of sample of water, acidity and alkalinity of water, turbidity of sample of water using turbidity meter, total and calcium hardness in sample of water, total, dissolved, and suspended solids in the sample of water.

Textbooks:

1. S. C. Rangwala, Engineering Materials, Charotar Publication House, 2014.
2. M.S. Shetty, Concrete Technology, S Chand Publishing Company.
3. S.K. Garg, Water Supply Engineering, Khanna Publications, Delhi

Reference Books:

1. Relevant IS codes.
2. Lab Manuals, CED, SVITS, SVVV

List of Practicals (Hands on Training)

1. **Test on Bricks** –Water Absorption Test, Compression strength Test, Efflorescence Test
2. **Test of Cements** –Fineness of cement by sieve analysis, Consistency, initial and final setting time using Vicat Apparatus, Compressive strength test of cement.
3. **Test on Fine and Coarse Aggregate** –Specific gravity of coarse and fine aggregate, mechanical test of coarse aggregate, bulking of sand.
4. **Test on Concrete** –Workability of concrete, compressive strength test of concrete, NDT test using rebound hammer.
5. **Quality of Water** –pH value of sample of water, acidity and alkalinity of water, turbidity of sample of water using turbidity meter, total and calcium hardness in sample of water, total, dissolved, and suspended solids in the sample of water.

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