

**BHUBANANANDA ODISHA SCHOOL OF ENGINEERING, CUTTACK**  
**DEPARTMENT OF CIVIL ENGINEERING**



**LESSON PLAN**

SUBJECT: CONCRETE TECHNOLOGY (TH 4)  
FACULTY: ABHIJIT SAHOO

ACCADEMIC SESSION: 2023-24 (SUMMER)  
SEMESTER: 6<sup>TH</sup>, SEC: A

Sd/-  
HOD (Civil Engg.)

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|------------------------------------------------|-------------------------------------------------------------------------------------------------|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Discipline:</b><br><b>Civil Engineering</b> | <b>Semester: 6<sup>th</sup> A</b>                                                               |                                 | <b>Name of Teaching Faculty: ABHIJIT SAHOO</b>                                                                                                                      |
| <b>Subject:</b><br><b>Concrete Technology</b>  | <b>No. of Days / week class allotted: 04 period per week (Thu-1, Fri-1&amp; Sat - 2 Period)</b> |                                 | <b>Semester From Date: 16-01-2024 To Date 26-04-2024</b><br><b>No. of Weeks: 15</b>                                                                                 |
| <b>Week</b>                                    | <b>Date</b>                                                                                     | <b>No. of periods available</b> | <b>Topics to be covered</b>                                                                                                                                         |
| 1ST                                            | 18/01/2024                                                                                      | 1                               | 1 CONCRETE AS A CONSTRUCTION MATERIAL:<br>1.1 Grades of concrete.<br>1.2 Advantages and disadvantages of concrete.                                                  |
|                                                | 19/01/2024                                                                                      | 1                               | 2 CEMENTS:<br>2.1 Composition, hydration of cement, water cement ratio and compressive strength,                                                                    |
|                                                | 20/01/2024                                                                                      | 2                               | 2.1 fineness of cement, setting time, soundness, types of cement.                                                                                                   |
| 2ND                                            | 25/01/2024                                                                                      | 1                               | 3 AGGREGATE, WATER AND ADMIXTURES:<br>3.1 Classification and characteristics of aggregate, fineness modulus, grading of aggregate, I.S.383                          |
|                                                | 27/01/2024                                                                                      | 2                               | 3.2 Quality of water for mixing and curing                                                                                                                          |
| 3RD                                            | 01/02/2024                                                                                      | 1                               | 3.3 Important functions, classification of admixtures, I.S 9103, accelerating admixtures, retarding admixtures, water reducing admixtures, air containing admixture |
|                                                | 02/02/2024                                                                                      | 1                               | 4 PROPERTIES OF FRESH CONCRETE:                                                                                                                                     |

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|-----------------|------------|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                 |            |   | 4.1 Concept of fresh concrete, workability, slump test, compacting factor test,                                                                                     |
|                 | 03/02/2024 | 2 | 4.1 V-bee consistency test and flow test, requirement of workability, I.S.1199.                                                                                     |
| 4TH             | 08/02/2024 | 1 | 5 PROPERTIES OF HARDENED CONCRETE:<br><br>5.1 Cube and cylinder compressive strengths, flexural strength of concrete, stress-strain and elasticity,                 |
|                 | 09/02/2024 | 1 | 5.1 Phenomena of creep and shrinkage, permeability, durability of concrete,                                                                                         |
|                 | 10/02/2024 | 2 | 5.1 Sulphate, chloride and acid attack on concrete, efflorescence.                                                                                                  |
| 5TH             | 15/02/2024 | 1 | 6 CONCRETE MIX DESIGN<br><br>6.1 a) Introduction b) Data or input required for mix design.                                                                          |
|                 | 16/02/2024 | 1 | 6.2 Nominal mix concrete & design mix concrete and Basic consideration for concrete mix                                                                             |
|                 | 17/02/2024 | 2 | 6.3 Methods of proportioning concrete mix – I.S Code method of mix design (I.S.10262)                                                                               |
| 6TH             | 22/02/2024 | 1 | 7 PRODUCTIONS OF CONCRETE:<br><br>7.1 Batching of materials, mixing of concrete materials, transportation, placing of concrete, Compaction of concrete (vibrators), |
|                 | 23/02/2024 | 1 | 7.1 Curing of concrete, Formwork-requirements and types, stripping of forms                                                                                         |
|                 | 24/02/2024 | 2 | 8 INSPECTION AND QUALITY CONTROL OF CONCRETE<br><br>8.1 Quality control of Concrete as per I.S.456, Factors causing the variations in the quality of concrete.      |
| 7 <sup>th</sup> | 29/02/2024 | 1 | Monthly Class Test 1                                                                                                                                                |
|                 | 01/03/2024 | 1 | 8.2 Mixing, Transporting, Placing & curing requirements of Concrete as per I.S.456.                                                                                 |
|                 | 02/03/2024 | 2 | 8.3 Inspection and Testing as per Clause 17 of IS:456.                                                                                                              |

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| 8 <sup>th</sup>  | 07/03/2024 | 1 | 8.4 Durability requirements of Concrete as per I.S:456                  |
|                  | 09/03/2024 | 2 | 9 SPECIAL CONCRETE<br>9.1 Introduction to ready mix concrete,           |
| 9 <sup>th</sup>  | 14/03/2024 | 1 | 9.1 high performance concrete                                           |
|                  | 15/03/2024 | 1 | 9.1 silica fume concrete,                                               |
|                  | 16/03/2024 | 2 | 9.1 Shot-Crete concrete or uniting (Concepts only).                     |
| 10 <sup>th</sup> | 21/03/2024 | 1 | 10 DETERIORATION OF CONCRETE AND ITS PREVENTION:                        |
|                  | 22/03/2024 | 1 | 10.1 Types of deterioration,                                            |
|                  | 23/03/2024 | 2 | 10.1 Prevention of concrete deterioration,                              |
| 11 <sup>th</sup> | 28/03/2024 | 1 | 10.1 corrosion of reinforcement, effects and prevention.                |
|                  | 30/03/2024 | 2 | Monthly Class Test 2                                                    |
| 12 <sup>th</sup> | 04/04/2024 | 1 | 11 REPAIR TECHNOLOGY FOR CONCRETE STRUCTURES:                           |
|                  | 05/04/2024 | 1 | 11.1 Symptom, cause and, cracking of concrete due to different reasons. |
|                  | 06/04/2024 | 2 | 11.1 Symptom, cause and, cracking of concrete due to different reasons. |
| 13 <sup>th</sup> | 12/04/2024 | 1 | 11.1 Prevention and remedy of defects during construction               |
|                  | 13/04/2024 | 2 | 11.1 Repair of cracks for different purpose                             |
| 14 <sup>th</sup> | 18/04/2024 | 1 | 11.1 Selection of techniques for repair of Concrete                     |
|                  | 19/04/2024 | 1 | 11.1 Polymer based repairs, common types of repairs.                    |
|                  | 20/04/2024 | 2 | Revision                                                                |
| 15 <sup>th</sup> | 25/04/2024 | 1 | Revision                                                                |
|                  | 26/04/2024 | 1 | Previous year questions and answers discussion                          |