**20CE32P1 -ENVIRONMENTAL ENGINEERING LABORATORY**

**(Civil Engineering)**

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| **Course Category** | Professional Core | **Credits** | 1.5 |
| **Course Type** | Practical | **Lecture - Tutorial - Practical** | 0 - 0 - 3 |
| **Prerequisite** | None | **Sessional Evaluation** | 40 |
| **Semester End Exam Evaluation** | 60 |
| **Total Marks** | 100 |

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| **Course Outcomes** | CO1 | Determine color and turbidity of water |
| CO2 | Determine total, dissolved, suspended and settleable solids in water. |
| CO3 | Determine pH, acidity and alkalinity of water. |
| CO4 | Determine hardness of water and chlorides in water |
| CO5 | Determine BOD, COD and sulphates in water. |
| CO6 | Determine Optimum Coagulant Dose. |
| **Course Content** | **LIST OF EXPERIMENTS**  1. Determination of Residual chlorine  2. Determination of Turbidity  3. Determination of total solids, suspended solids and dissolved solids  4. Determination of Settleable solids  5. Determination of pH  6. Determination of Acidity  7. Determination of Alkalinity  8. Determination of Hardness  9. Determination of Chlorides  10. Determination of Sulphates using UV-Vis spectrophotometer.  11. Determination of COD  12. Determination of Optimum Coagulant Dose  13. Demonstration of BOD, Colour | |
| **Textbooks** | **TEXTBOOKS:**   1. Dr. Kotaiah and Dr. N. Kumara Swamy,*Environmental Laboratory Manual*, Charotar publishing house, 1994. 2. Indian standards for Analysis of water and Wastewater. | |

**CO-PO Mapping:** 3-High Mapping, 2-Moderate Mapping, 1-Low Mapping, - -Not Mapping

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|  | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** | **PSO1** | **PSO2** | **PSO3** |
| **CO1** | 2 | 2 | - | 1 | - | - | 1 | - | - | - | 1 | 2 | - | - | 1 |
| **CO2** | 2 | 2 | - | 1 | - | - | 1 | - | - | - | 1 | 2 | - | - | 1 |
| **CO3** | 3 | 2 | - | 1 | - | - | 1 | - | - | - | 1 | 2 | - | - | 1 |
| **CO4** | 3 | 2 | - | 1 | - | - | 1 | - | - | - | 1 | 2 | - | - | 1 |
| **CO5** | 3 | 2 | - | 1 | 2 | - | 1 | - | - | - | 1 | 2 | - | - | 1 |
| **CO6** | 2 | 2 | - | 1 | - | - | 1 | - | - | - | 1 | 2 | - | - | 1 |