**19CE32P1 -ENVIRONMENTAL ENGINEERING LABORATORY**

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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 Objectives** | 1. To introduce experiments related to water quality. 2. To prepare technical reports based on laboratorial results. | |
| **Course Outcomes** | CO1 | Determine color and turbidity of water |
| CO2 | Determine total, dissolved and settleable solids in water. |
| CO3 | Determine pH, acidity and alkalinity of water. |
| CO4 | Determine hardness of water and chlorides in water |
| CO5 | Determine COD and sulphates in water. |
| CO6 | Determine Optimum Coagulant Dose. |
| **Course Content** | **LIST OF EXPERIMENTS**  1. Determination of Color  2. Determination of Turbidity  3. Determination of total 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 | |
| **Textbooks** | **TEXTBOOKS:**   1. Dr. Kotaiah and Dr. N. Kumara Swamy, *Environmental Laboratory Manual*, Chatoter publishing house, 1994. 2. Standards Methods for Analysis of water and Wastewater-APHA | |

**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** |
| **CO 1** | 2 | 2 | - | 1 | - | - | 1 | - | - | - | 1 | 2 |
| **CO2** | 2 | 2 | - | 1 | - | - | 1 | - | - | - | 1 | 2 |
| **CO3** | 3 | 2 | - | 1 | - | - | 1 | - | - | - | 1 | 2 |
| **CO4** | 3 | 2 | - | 1 | - | - | 1 | - | - | - | 1 | 2 |
| **CO 5** | 3 | 2 | - | 1 | 2 | - | 1 | - | - | - | 1 | 2 |
| **CO 6** | 2 | 2 | - | 1 | - | - | 1 | - | - | - | 1 | 2 |