**19SH12P3-** **ENGINEERING CHEMISTRY LABORATORY**

(Common to EEE, ECE, CSE & IT)

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| **Course Category:** | Basic science | **Credits:** | 1.5 |
| **Course Type:** | Practical | **Lecture-Tutorial-Practical:** | 0-0-3 |
| **Prerequisite:** | Fundamental concepts of Chemistry | **Sessional Evaluation:**  **External Exam Evaluation:**  **Total Marks:** | 40  60  100 |

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| **Course**  **Objectives** | Students undergoing this course are expected to understand: | |
| The main objective is to provide students to learn about experimental techniques in chemistry with knowledge in theoretical aspects so that they can excel in that particular field. | |
| **Course Outcomes** | Upon successful completion of the course , the students will be able to: | |
| CO1 | Determine the cell constant and conductance of solutions |
| CO2 | Prepare advanced polymer materials |
| **Course**  **Content** | Minimum of 8 experiments to be completed out of the following:  **LIST OF EXPERIMENTS**   1. Determination of total hardness of water by EDTA method 2. Determination of total alkalinity of water 3. Estimation of chlorides using potassium chromate indicator 4. Determination of cell constant and conductance of solutions 5. Conductometric titration of strong acid Vs strong base 6. Conductometric titration of weak acid Vs strong base 7. Determination of pH of unknown solution 8. Potentiometry - determination of redox potentials and emfs 9. Determination of Strength of an acid in Pb-Acid battery 10. Preparation of a polymer 11. Determination of viscosity of oils with Redwood viscometer 12. Adsorption of acetic acid by charcoal | |
| **Text Books and Reference Books** | **TEXT BOOKS:**   1. Mendham J et al, Vogel’s text books of quantitative chemical analysis, 5Ed., Pearson publications, 2012. 2. KN Jayaveera, Subba reddy & Chandra sekhar , Chemistry lab manual, 1Ed., SM Enterprises, Hyderabad, 2014 | |

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| Contribution of Course Outcomes towards achievement of Program Outcomes (3-High, 2-Medium, 1-Low) | | | | | | | | | | | | | | |
|  | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 |
| CO1 | 3 | 3 | 3 | - | - | - | 2 | 3 | - | - | 3 | 3 | - | - |
| CO2 | 3 | 3 | 2 | - | - | - | 3 | 3 | - | - | 2 | 3 | - | - |
| CO3 | 3 | 3 | 3 | - | - | - | 2 | 2 | - | - | 3 | 2 | - | - |
| CO4 | 3 | 3 | 2 | - | - | - | 2 | 3 | - | - | 3 | 2 | - | - |
| CO5 | 3 | 3 | 2 | - | - | - | 3 | 2 | - | - | 2 | 2 | - | - |
| CO6 | 3 | 3 | 2 | - | - | - | 2 | 2 | - | - | 2 | 2 | - | - |