Annexure-III
SPL BOS, APS: 27.3.2019

<table>
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<tr>
<th>Section</th>
<th>Course Designation</th>
<th>Year/Semester</th>
<th>Course No.</th>
<th>Course Title</th>
<th>Course Type</th>
<th>Total Marks</th>
<th>Contact Hours</th>
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<td>Applied Science</td>
<td>Diploma in Engineering</td>
<td>First Year (I-Semester)</td>
<td>BCH-191</td>
<td>Applied ChemistryLab - I</td>
<td>Lab</td>
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Course Assessment Method
1. Viva-Voce (30Marks)
2. End-Semester Lab Examination (20 Marks) – 2 Hours

Course Objectives
The objective of this Lab course is to develop the interest among the students regarding chemistry experiments and their application in engineering.

1. The students should understand the purpose of titration in related branches of engineering.
2. To develop an analytical understanding of chemistry.
3. To develop a basic knowledge of synthesis of polymers.
4. To develop a chemical calculation skill.

Course Outcomes
1. Identify and compare the different types of polymers synthesis process and mechanism.
2. To understand the acid-base chemistry and its neutralization mechanism.
3. To understand the oxidation and reduction process and its redox mechanism.
4. To visualize the different functional groups reaction mechanism.

Topics to be covered

Activity – 1: Some important terms related to experiments.

Activity – 2: Prepare N/10 solution of Oxalic acid into 250 ml of distilled water.

Activity – 3: Prepare N/10 solution of Sodium hydroxide into 250 ml of distilled water.

Activity – 4: Find out the normality and strength in gm/litre of a given unknown solution of NaOH by titrating it against standard solution of N/2O oxalic acid (acid base titration).

Activity – 5: Identification of functional groups
1. Alcohol
2. Phenol
3. Aldehyde
4. Carboxylic Acid

Text Books and/or Reference Books
1. Laboratory Manual Chemistry- B. Bhushan
2. Comprehensive Practical Chemistry-Dr. N.K. Verma and B.K. Vermani
3. Experiments in Chemistry and Biochemistry- Dr. Vinod Kumar, Dr. H.C. Joshi and Dr. Waseem Ahmad

Additional Learning Source
<table>
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<tr>
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<td>BCH-291</td>
<td>Applied Chemistry Lab-II</td>
<td>Lab</td>
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### Course Assessment Method

1. Viva-Voce (30 marks)
2. End-Semester Lab Examination (20 Marks) – 2 Hours

### Course Objectives

The objective of this Lab course is to develop the interest among the students regarding chemistry experiments and their application in engineering.

1. The students should understand the purpose of titration in related branches of engineering.
2. To Develop an analytical understating of chemistry.
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### Course Outcomes

1. Identify and compare the different types of polymers synthesis process and mechanism.
2. To understand the acid-base chemistry and its neutralization mechanism.
3. To understand the oxidation and reduction process and its redox mechanism.
4. To visualize the different functional groups reaction mechanism.

### Topics to be covered

Activity–1: Some important terms about experiments.

Activity–2: To find normality and strength in gm/l of unknown KMnO4 by titrating it with standard solution of N/20 oxalic acid in redox titration.

Activity–3: Preparation of (Synthetic Polymer) Urea-Formaldehyde.

Activity–4: To estimate the percentage of moisture in the given sample of coal.

Activity–5: To estimate the hardness of the given water sample by EDTA method.

### Text Books and/or Reference Books

1. Laboratory Manual Chemistry- B. Bhushan
2. Comprehensive Practical Chemistry-Dr. N.K. Verma and B.K. Vermani
3. Experiments in Chemistry and Biochemistry- Dr. Vinod Kumar, Dr. H.C. Joshi and Dr. Waseem Ahmad

### Additional Learning Source