



**ADIKAVI NANNAYA UNIVERSITY :: RAJAHMAHENDRAVARAM**  
**B.Sc Chemistry Syllabus (w.e.f: 2020-21 A.Y)**

<b>B.Sc.</b>	<b>Semester - I</b>	<b>Credits: 4</b>
<b>Course: 1</b>	<b>Inorganic and Physical Chemistry</b>	<b>Hrs/Wk: 4</b>

**Course outcomes:**

At the end of the course, the student will be able to;

- Understand the basic concepts of p-block elements
- Explain the difference between solid, liquid and gases in terms of intermolecular interactions.
- Apply the concepts of gas equations, pH and electrolytes while studying other chemistry courses.



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<b>B.Sc.</b>	<b>Semester - I</b>	<b>Credits: 1</b>
<b>Course: 1(L)</b>	<b>Analysis of SALT MIXTURE LAB</b>	<b>Hrs/Wk: 2</b>

**LABORATORY COURSE -I**

**30hrs (2 h / w)**

**Qualitative inorganic analysis (Minimum of Six mixtures should be analyzed) 50 M**

**Course outcomes:**

At the end of the course, the student will be able to;

- Understand the basic concepts of qualitative analysis of inorganic mixture
- Use glassware, equipment and chemicals and follow experimental procedures in the laboratory
- Apply the concepts of common ion effect, solubility product and concepts related to qualitative analysis



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<b>B.Sc.</b>	<b>Semester - II</b>	<b>Credits: 4</b>
<b>Course: 2</b>	<b>Organic &amp; General Chemistry</b>	<b>Hrs/Wk: 4</b>

**Course outcomes:**

At the end of the course, the student will be able to;

- Understand and explain the differential behavior of organic compounds based on fundamental concepts learnt.
- Formulate the mechanism of organic reactions by recalling and correlating the fundamental properties of the reactants involved
- Learn and identify many organic reaction mechanism including Free Radical Substitution, Electrophonic Addition and Electrophonic Aromatic Substitution.
- Correlate and describe the stereochemical properties of organic compounds and reactions.



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<b>B.Sc.</b>	<b>Semester - II</b>	<b>Credits: 1</b>
<b>Course: 2(L)</b>	<b>Volumetric Analysis Lab</b>	<b>Hrs/Wk: 2</b>

**Course outcomes:**

At the end of the course, the student will be able to;

- Use glassware, equipment and chemicals and follow experimental procedures in the laboratory
- Understand and explain the volumetric analysis based on fundamental concepts learnt in ionic equilibria
- Learn and identify the concepts of a standard solutions, primary and secondary standards
- Facilitate the learner to make solutions of various molar concentrations.
- This may include: The concept of the mole; Converting moles to grams; Converting grams to moles; Defining concentration; Dilution of Solutions; Making different molar concentrations.



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<b>B.Sc.</b>	<b>Semester - III</b>	<b>Credits: 4</b>
<b>Course: 3</b>	<b>Organic chemistry &amp; Spectroscopy</b>	<b>Hrs/Wk: 4</b>

**Course outcomes:**

At the end of the course, the student will be able to;

- Understand preparation, properties and reactions of haloalkanes, haloarenes and oxygen containing functional groups.
- Use the synthetic chemistry learnt in this course to do functional group transformations.
- To propose plausible mechanisms for any relevant reaction



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<b>B.Sc.</b>	<b>Semester - III</b>	<b>Credits: 1</b>
<b>Course: 3(L)</b>	<b>Organic preparations and IR Spectral Analysis Lab</b>	<b>Hrs/Wk: 2</b>

**Course outcomes:**

On the completion of the course, the student will be able to do the following:

1. how to use glassware, equipment and chemicals and follow experimental procedures in the laboratory
2. how to calculate limiting reagent, theoretical yield, and percent yield
3. how to engage in safe laboratory practices by handling laboratory glassware, equipment, and chemical reagents appropriately
4. how to dispose of chemicals in a safe and responsible manner
5. how to perform common laboratory techniques including reflux, distillation, recrystallization, vacuum filtration.
6. how to create and carry out work up and separation procedures
7. how to critically evaluate data collected to determine the identity, purity, and percent yield of products and to summarize findings in writing in a clear and concise manner



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<b>B.Sc.</b>	<b>Semester - IV</b>	<b>Credits: 4</b>
<b>Course: 4</b>	<b>Inorganic, Organic and Physical Chemistry</b>	<b>Hrs/Wk: 4</b>

**Course outcomes:**

At the end of the course, the student will be able to;

- To learn about the laws of absorption of light energy by molecules and subsequent photochemical reactions.
- To understand the concept of quantum efficiency and mechanisms of photochemical reactions.



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<b>B.Sc.</b>	<b>Semester - IV</b>	<b>Credits: 1</b>
<b>Course: 4(L)</b>	<b>Organic Qualitative analysis Lab</b>	<b>Hrs/Wk: 2</b>

**Course outcomes:**

At the end of the course, the student will be able to;

- Use glassware, equipment and chemicals and follow experimental procedures in the laboratory
- Determine melting and boiling points of organic compounds
- Understand Application of concepts of different organic reactions studied in theory part of organic chemistry





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<b>B.Sc.</b>	<b>Semester - IV</b>	<b>Credits: 4</b>
<b>Course: 5</b>	<b>Inorganic &amp; Physical Chemistry</b>	<b>Hrs/Wk: 4</b>

**Course outcomes:**

At the end of the course, the student will be able to;

- Understand concepts of boundary conditions and quantization, probability distribution, most probable values, uncertainty and expectation values
- Application Of Quantization To Spectroscopy.
- Various types of spectra and their use in structure determination.



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<b>B.Sc.</b>	<b>Semester - IV</b>	<b>Credits: 1</b>
<b>Course: 5(L)</b>	<b>Conductometric and Potentiometric Titrimetry Lab</b>	<b>Hrs/Wk: 2</b>

**Course outcomes:**

At the end of the course, the student will be able to;

- Use glassware, equipment and chemicals and follow experimental procedures in the laboratory
- Apply concepts of electrochemistry in experiments
- Be familiar with electroanalytical methods and techniques in analytical chemistry which study an analyte by measuring the potential ( volts) and/or current ( amperes) in an electrochemical cell containing the analyte