AC/I/(23-24).3.RUS5

# S. P. Mandali's

# Ramnarain Ruia Autonomous College

***(Affiliated to University of Mumbai)***

## Syllabus for

## Program: F.Y.B.Sc.

## Program Code: (RUSCHE)

(As per the guidelines of National Education Policy 2020-
Academic year 2023-24)

(Choice based Credit System)

**F.Y.B.Sc. Syllabus 2023-24 (As per NEP)**

**PROGRAM OUTLINE 2023-24**

| | | | | |
|---|---|---|---|---|
| **I** | **RUSVSCCHE. O101** | **Vocational Skill Course (VSC)** | | |
| | | Unit-I | Chemical Calculations | **1** |
| | | | Practical | **1** |
| **II** | **RUSVSCCHE. E111** | **Vocational Skill Course (VSC)** | | |
| | | Unit-I | Characterization of Organic compounds | **1** |
| | | | Practical | **1** |

## Vocational Skill Course (VSC)

| | SEMESTER I | |
|---|---|---|
| **Unit** | **Content** | **No of Lectures** |
| **I** | **Chemical Calculations:**<br><br>1.1 Mole concept, relation with molar mass, conversion of amount into mole and vice versa, relation with the number of particles present.<br><br>1.2 Amount and concentration, volume based units for concentration, molarity, normality, formality, mass based unit for concentration - molality and mole fraction, ppm and ppb, concept of millimoles and milliequivalents.<br><br>1.3 Problem solving based on various concentration units<br><br>1.4 Stoichiometry and calculations based on it, concept of limiting reactant and yield for a chemical reaction.<br><br>1.5 Calculations based on stoichiometry.<br><br>1.6 Primary standards, properties of primary standards, primary standards for different types of titrations, secondary standards, standardisation, standard solutions. | **15** |
| **Practical** | 1. Preparation of standard solutions.<br>2. To determine the valence factor of KMnO4 by titrating with oxalic acid.<br>3. To determine the Strength of commercially available samples of HCl.<br>4. Determination of the strength of the supplied sodium hydroxide solution, using solution of a primary standard for acid base titration.<br>5. To determine the percentage composition of a mixture ($BaSO_4$ + $NH_4Cl$) gravimetrically. | |
| | **Reference:**<br><br>1. Essentials of Physical Chemistry by Bahl And Tuli. | |

| | SEMESTER II | |
|---|---|---|
| **Unit** | **Content** | **No of Lectures** |
| **I** | **Characterization of Organic compounds**<br>1.1 Peculiar Reactions and Analysis of the following functional groups:<br>1) Alkyl halides<br>2) Alcohols<br>3) Aldehydes and Ketones<br>4) Acids and Esters<br>5) Amides and Anilides<br>6) Amines<br>7) Nitro Compounds<br>1.2 Analysis of Elements | **15** |
| **Practical** | **Organic Spotting (3 solid compounds and 3 liquid compounds)** | **15** |
| | **Reference:**<br>**1.** Vogel's Textbook of Practical Organic Chemistry | |

**Modality of assessment**

| Sr. No. | Number of Credits | Total Marks | Internal Assessment (Marks) | Internal Assessment (Pattern) | Semester End Examination(Marks) | Duration of Sem End Exam |
|---|---|---|---|---|---|---|
| 1 | 1 (Theory) | 25 | 12 | Class Test/Assignment/Open Book Test | 13 | 45 Minutes |
| 2 | 1 (Practical) | 25 | 13 | NA | 12 | 90 Minutes |