

Branch Name:	Chemistry
Program Code:	SC103
Course Name:	Chemistry practical
Course Code:	2SC1030605
Pre-requisite Course:	Basic knowledge of the properties compound

Course Objectives:

1. Sampling in chemical and pharmaceutical industries
2. To learn about maintenance and calibration of instruments,
3. To study about different type inorganic synthesis.

Teaching and Examination Scheme:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
Lecture (L)	Tutorial (T)	Practical (P)	Credit	Theory (Marks)		Practical (Marks)		Total (Marks)
				University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	
-	--	12	6	-	-	120	80	200

List of Experiments:

Sr. No	Practical Exercise
1.	Inorganic Chemistry practical (A) Alloy 1. Brass alloy ----- Zn (Gravimetric) and Cu (Volumetric) 2. German silver alloy -----Ni (Gravimetric) and Cu (Volumetric) 3. Bronze alloy -----Sn (Gravimetric) and Cu (Volumetric) (B) Synthesis by Convention Method 1. Ferrous Sulphate or Green vitriol ($\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$) 2. Sodium cobaltinitrate $\text{Na}_3 [\text{Co}(\text{NO}_2)_6]$ 3. Tetra amine cupric sulphate 4. Hexa thio urea plumbous nitrate 5) Cuprous chloride
2.	Organic Chemistry practical Qualitative Analysis (Minimum 08) Analysis of an organic mixture containing two components using water, NaHCO_3 , NaOH , HCl for Separation /or using distillation process for separation and identification with the Preparation of Suitable derivatives. Soluble Components:- Oxalic Acid, Succinic Acid, Resorcinol, Urea, Thio Urea Separation of two components from Organic Mixture Such as.... Solid-Solid -----Mixture Solid- Liquid -----Mixture L liquid-Liquid ----- Mixture [Liquid component must be neutral in nature]
3.	Physical Chemistry Physical Chemistry [Instruments]: (Minimum 05) 1. To determine concentration of the given Iodide solution by Potentiometric titration against 0.1N KMnO_4 solution. 2. To determine formal redox potential of $\text{Fe}^{+2}/\text{Fe}^{+3}$ by Potentiometry.

	3. To determine the concentration of the nitrite in the given solution by Colorimetric estimation method. 4. To determine the concentration of unknown solution from given $K_2Cr_2O_7$ by Colorimetric. 5. To determine the Solubility product and solubility of sparingly soluble salt of $BaSO_4$ by Conductometry. 6. To determine the strength of strong and weak base in a given mixture using a pH meter. [B] Kinetics, Adsorption & Polymer (Minimum 03) 1. To study the reaction between $KBrO_3$ and KI at two different temperature and calculate the temperature coefficient and the energy of activation. 2. To study the absorption of Acetic Acid on Charcoal and prove the validity of Freundlich equation. 3. To determination of molecular weight of high polymer (i.e. polystyrene) by Viscosity measurement. 4. To study the rate constant of the reaction between $K_2S_2O_8$ and KI and study the influence of ionic strength on the rate constant
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Text Books:

1. Nirav college practical book.
2. Vogel's textbook of practical organic chemistry FIFTH EDITION by Brian S. Furniss Antony J. Hannaford Peter W. G. Smith Austin R. Tatchell

Reference Books:

1. Advanced Practical Organic Chemistry First Edition by Dorothy Bartlett ,2009
2. Advanced Practical Physical Chemistry, PB. by **J B Yadav**

List of Open Source Software/learning website:

1. <https://www.slideshare.net/Haddies/ph-meter>
2. <https://www.slideshare.net/tanujanautiyal/separation-and-purification-of-organic-compounds>

Course Learning Outcomes (CLO): On completion of this course, the students will be able to:

CLO	Description	Bloom's Taxonomy Level
CLO1	Identify the physical state of the organic compound.	1 Remembering
CLO2	Classify the different test for organic qualitative analysis.	2 Understanding
CLO3	Use the different types of reagents for inorganic synthesis and find out the amount of element present in Alloy.	3 Applying
CLO4	Conclude the present positive and negative radical in inorganic substance.	4 Analyzing
CLO5	Find out the Value of concentration for solution by using instrumentation titration method.	5 Evaluating
CLO6	Modify the reactant with reagent for different inorganic synthesis.	6 creating

Mapping of CLOs with POs & PSOs

Course Learning Outcomes	Program Outcomes(POs)								
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
CLO1	M	M		L					
CLO2	L	M			M				
CLO3			L		M				
CLO4		L							
CLO5		H	M						
CLO6		H	M						

H: High, M: Medium, L: Low