

21PCM101P					Engineering Chemistry Practical					
Teaching Scheme					Examination Scheme					
L	T	P	C	Hours/Week	Theory			Practical		Total Marks
					MS	ES	IA	LW	LE/Viva	
0	0	2	1	2	--	--	--	50	50	100

COURSE OBJECTIVES

- To enhance and develop scientific and analytical skills
- To relate concepts learned in chemistry and engineering to the real-world situations
- To acquire skills to perform laboratory experiments
- To demonstrate safe and proper use of standard chemistry glassware and equipment

List of Experiments

1. **External Indicator**–To determine the strength of given solution of ferrous ammonium sulphate by titrating against standard N/40 K₂Cr₂O₇ using potassium ferricyanide as an external indicator.
2. **Iodometry**– To determine the strength of given copper sulphate solution by titrating against N/20 sodium thiosulphate (hypo) solution.
3. **Iodometry**– To determine the strength of given ascorbic acid by titrating against standard N/10 iodine solution.
4. **Complexometric titration**– To determine the total, permanent and temporary hardness of given water by complexometric titration using standard 0.01M EDTA solution.
5. **pH metric titration**– To determine the strength of given HCl solution using a standard NaOH solution by performing a pH-metric titration.
6. **Conductometric titration**– To determine the strength of given HCl solution using a standard NaOH solution by performing a conductometric titration.
7. **Potentiometric titration**– To determine the strength of given HCl solution potentiometrically.
8. **Chemical kinetics**– To study the kinetics of decomposition of sodium thiosulphate by a mineral acid.
9. **Chloride in Water**– Determination of Chloride in the given water sample by Mohr Method
10. **Polymerization**– To prepare a polymer (Nylon 6,10), identify the functional groups by FT-IR
11. **Spectrophotometry**– To determine the λ_{max} and concentration of given unknown potassium permanganate using UV-Visible Spectroscopy technique

Max. 28 Hrs.

COURSE OUTCOMES

On completion of the course, student will be able to

- CO1: Apply the concepts learned in chemistry and engineering to the real-world situations.
 CO2: Enhanced ability to identify, analyse and interpret the results from the experiments
 CO3: Carry out quantitative analysis by instrumental method using conductometer
 CO4: Analyse compounds by titrimetric, gravimetric and instrumental methods
 CO5: Determine the concentration of unknown solutions by Spectrophotometric method
 CO6: Investigate the reaction rate and predict the order and rate constant

TEXT/REFERENCE BOOKS

1. College Practical Chemistry, VK Ahluwalia, S Dhingra, A Gulati, Universities Press.
2. Foundations of Experimental Chemistry, JB Baruah, P Gogoi, PharmaMed Press.
3. A Text Book of Chemistry Practicals Vol I & II, SS Sawhney, M S Jassal, SP Mittal, APH Publishing Corp.

END SEMESTER EXAMINATION QUESTION PAPER PATTERN

Max. Marks: 100

Part A: Lab Work - Continuous Assessment
 Part B: Lab Exam and Viva

Exam Duration: 3 Hrs.

50 marks
 50 Marks