ARSD College, University of Delhi

Model Course Handout/Lesson Plan

Course Name : BSC (Phy. Sc.) Chemistry - **Lab**						
Semester	**Course Code**	**Course Title**	**Lecture (L)**	**Tutorial (T)**	**Practical (P)**	**Credit (C)**
I	Course Code: CHEMISTRY – Core Paper-1	**Paper Name** : Atomic structure, bonding, general organic chemistry (Practical)	0	0	4	2
Teacher/Instructor(s)		1. Dr. Anju Gulati 2. Dr. Bhaskara Nand Pant 3. Dr. Preeti Chaudhary				
Session		2021-2022				

Course Description:

- Sessions on the construction and use of specific instruments, apparatus and chemicals used in the lab, including necessary precautions, safety, warnings and hazards.
- Sessions on the review of experimental data analysis, sources of error and their estimation in detail, writing of scientific laboratory reports including proper reporting of errors. Application to the specific experiments done in the lab.

List of Experiments:

Section A:

Inorganic Chemistry - Volumetric Analysis

1. Estimation of oxalic acid by titrating it with KMnO4.
2. Estimation of Mohr's salt by titrating it with KMnO4.
3. Estimation of water of crystallization in Mohr's salt by titrating with KMnO4.
4. Estimation of Fe (II) ions by titrating it with K2Cr2O7 using internal indicator.
5. Estimation of Cu (II) ions iodometrically using Na2S2O3.

Section B:

Organic Chemistry

1. Purification of organic compound by crystallisation (from water and alcohol) and distillation. 2. Criteria of purity: Determination of M.P./B.P.

3. Separation of mixtures by chromatography: Measure the Rf value in each case (combination of two compounds to be given) a) Identify and separate the components of a

given mixture of 2 amino acids (glycine, aspartic acid, glutamic acid, tyrosine or any other amino acid) by radial/ascending paper chromatography. b) Identify and separate the sugars present in the given mixture by radial/ascending paper chromatography.

Details of the Lab Course		
Session	**Name of Experiment**	**Contact Hours**
1	***Experiment 1:*** Estimation of oxalic acid by titrating it with KMnO4..	4
2	***Experiment 2:*** Estimation of Mohr's salt by titrating it with KMnO4.	4
3	***Experiment 3:*** Estimation of water of crystallization in Mohr's salt by titrating with KMnO4.	4
4	***Experiment 4:*** Estimation of Fe (II) ions by titrating it with K2Cr2O7 using internal indicator.	4
5	***Experiment 5:*** . Purification of organic compound by crystallisation (from water and alcohol) and distillation.	4
6	***Experiment 6:*** Determination of M.P. and B.P.	8
7	***Experiment 7:*** Identify and separate the components of a given mixture of 2 amino acids by ascending paper chromatography.	8
8	***Experiment 8:*** Identify and separate the sugars present in the given mixture by ascending paper chromatography.	8
9	***Experiment 9:*** Identify and separate the sugars present in the given mixture by radial paper chromatography.	8
10	***Experiment 10:*** Identify and separate the components of a given mixture of 2 amino acids by radial paper chromatography.	8
	Total	**60**

Suggested Books:

Sl. No.	**Name of Authors/Books/Publishers**	**Year of Publication/Reprint**
1	Jeffery, G.H.; Bassett, J.; Mendham, J.; Denney, R.C.(1989),Vogel's Textbook of Quantitative Chemical Analysis, 5 th Edn., John Wiley and Sons Inc,.	
2	Furniss, B.S.; Hannaford, A.J.; Smith, P.W.G.; Tatchell, A.R. (2012),Vogel's Textbook ofPractical Organic Chemistry, Pearson.	
3	Mann, F. G.; Saunders, B. C. (2009),**Practical Organic Chemistry**, Pearson Education.	

Evaluation Scheme:

No.	**Component**	**Duration**	**Marks**
1.	Internal Assessment		25
	• Quiz/Viva		
	• Observation & Record		
	• Attendance		
	• Model Exam		
2.	End Semester Examination	6 hr	25