



# ARSD College, University of Delhi

## Model Course Handout/Lesson Plan

<b>Course Name : B.Sc. (APS) Industrial Chemistry – Lab</b>						
Semester	Course Code	Course Title	Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
IV	42173923	Basic Analytical Chemistry	0	0	4	2
Teacher/Instructor(s)		Dr Nidhi Dureja, Dr Jaya Tomar and Dr Anju Bajaj				
Session		2022-23				

### Course Description:

During the session students will learn

\* the laws of pH metery, complexometry , paper chromatography and many more equipments including handling and working of mentioned equipments.

\* Writing a practical record with understanding of theory, procedure, precautions, recording data, analysing data and plotting it on graph paper to determine the unknown concentrations of various compounds by analytical techniques

### List of Experiments:

Details of the Lab Course		
Session	Name of Experiment	Contact Hours
1	Determination of pH of soil samples.	4
2	Estimation of Calcium and Magnesium ions as Calcium carbonate by complexometric titration.	4
3	Determination of pH, acidity and alkalinity of a water sample.	4
4	Determination of dissolved oxygen (DO) of a water sample.	4
5	Paper chromatographic separation of mixture of metal ion ( $\text{Ni}^{2+}$ and $\text{Co}^{2+}$ ).	4
6	To study the use of phenolphthalein in trap cases.	4
7	To analyze arson accelerants.	4
8	To carry out analysis of gasoline.	4
9	Estimation of macro-nutrients: Potassium, calcium and magnesium in soil samples by flame photometry.	4
10	Spectrophotometric determination of Iron in vitamin / dietary tablets.	4
11	Spectrophotometric identification and determination of caffeine and benzoic acid in soft drink.	4
12	Determination of ion exchange capacity of anion / cation exchange resin (using batch procedure if use of column is not feasible).	4
<b>Total</b>		<b>48</b>
Suggested Books:		
Sl. No.	Name of Authors/Books/Publishers	Year of Publication/Reprint
1.	Mendham, J.; Denney, R.C.; Barnes, J.D.; Thomas, M.J.K., <b>Vogel's Quantitative Chemical Analysis</b> , 6 <sup>th</sup> Edition, Prentice Hall	(2007),
2.	Svehla, G. <b>Vogel's Qualitative Inorganic Analysis</b> , Prentice Hall.	(1996),
3.	Skoog, D.A.; Holler F.J.; Nieman, T.A. <b>Principles of Instrumental Analysis</b> , Thomson Asia Pvt. Ltd	(2005),

4	Harris, D. C. <b>Exploring Chemical Analysis</b> , W.H. Freeman and Co.	(2007),
5	Christian, G.D., <b>Analytical Chemistry</b> , John Wiley & Sons.	(2004)

**Evaluation Scheme:**

No.	Component	Duration	Marks
1.	Continuous Evaluation		25
	• Quiz/Viva		
	• Observation & Record		
	• Attendance		
	• Mock Exam		
2.	End Semester Examination	5 hours	25
3	Total		50