



# ARSD College, University of Delhi

## Model Course Handout/Lesson Plan

Course Name : B.Sc. Industrial Chemistry Practical						
Semester	Course Code	Course Title	Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
I	CC – IC1: CORE COURSE INDUSTRIAL CHEMISTRY- 1	Industrial Chemicals & Environment	4			2
Teacher/Instructor(s)		Dr. Nimalini Moirangthem (Sharing with Dr. Anju Bajaj)				
Session		2021-22				

### Course Description:

The aim of this course is to make students aware of different industrial processes in detail. This course is basically designed to understand the chemistry of the industrial processes like Purification techniques, handling of important gases, acids, bases, pollutants, Industrial effluent and water treatment. The analytical approach of this course is to enhance the reasoning and to understand the mechanical part of the industry. The aim of this course is that the students will learn the conventional and latest techniques used in abatement of environmental pollution (air, water and industrial effluents).

### List of Experiments:

1. Determination of dissolved oxygen in water.
2. Determination of Chemical Oxygen Demand (COD)
3. Determination of Biological Oxygen Demand (BOD)
4. Percentage of available chlorine in bleaching powder.
5. Measurement of chloride, sulphate and salinity of water samples by simple titration method. (AgNO<sub>3</sub> and potassium chromate)
6. Estimation of total alkalinity of water samples (CO<sub>3</sub><sup>2-</sup>, HCO<sub>3</sub><sup>-</sup>) using double titration method.
7. Isolation of compound using solvent extraction method.
8. A survey based study on common bio-indicators of pollution and SPM in air samples.
9. Preparation of borax and boric acid.

Details of the Lab Course		
Session	Name of Experiment	Contact Hours
1	Determination of dissolved oxygen in water.	4
2	Determination of dissolved oxygen in water.	4
3	Determination of Chemical Oxygen Demand (COD)	4

4	Determination of Chemical Oxygen Demand (COD)	4
5	Determination of Biological Oxygen Demand (BOD)	4
6	Determination of Biological Oxygen Demand (BOD)	4
7	Percentage of available chlorine in bleaching powder.	4
8	Measurement of chloride, sulphate and salinity of water samples by simple titration method. (AgNO <sub>3</sub> and potassium chromate)	4
9	Measurement of chloride, sulphate and salinity of water samples by simple titration method. (AgNO <sub>3</sub> and potassium chromate)	4
10	Measurement of chloride, sulphate and salinity of water samples by simple titration method. (AgNO <sub>3</sub> and potassium chromate)	4
11	Estimation of total alkalinity of water samples (CO <sub>3</sub> <sup>2-</sup> , HCO <sub>3</sub> <sup>-</sup> ) using double titration method	4
12	Isolation of compound using solvent extraction method.	4
13	A survey based study on common bio-indicators of pollution and SPM in air samples.	4
14	Preparation of borax and boric acid.	4
15	Test	4
<b>Total</b>		<b>60</b>

**Suggested Books:**

Sl. No.	Name of Authors/Books/Publishers	Year of Publication/Reprint
1.	Stocchi, E. Industrial Chemistry, Vol -I, Ellis Horwood Ltd. UK.	1990
2.	Kent, J. A. (ed), Riegel's Handbook of Industrial Chemistry, CBS Publishers, New Delhi.	1997
3.	Pani, B., Textbook of Environmental Chemistry, I.K. International Publishing House.	2017
4.	De, A. K. , Environmental Chemistry, New Age International Pvt, Ltd, New Delhi.	2012
5.	Khopkar, S.M., Environmental Pollution Analysis, New Age International Publisher.	2010
6.	Dr. Sunita Rattan, S.K. Kataria & Sons.	2009

**Evaluation Scheme:**

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