



# ARSD College, University of Delhi

## Model Course Handout/Lesson Plan

| Course Name : B.Sc. (H) Chemistry- Lab |   |  |             |              |               |            |
|--|---|--|-------------|--------------|---------------|------------|
| Semester                               | Course Code                             | Course Title   | Lecture (L) | Tutorial (T) | Practical (P) | Credit (C) |
| III                                    | CHEMISTRY - CVI: ORGANIC CHEMISTRY - II | Core Course-Halogenated Hydrocarbons and Oxygen Containing Functional Groups | 0           | 0            | 4             | 2          |
| Teacher/Instructor(s)                  |   | 1. Dr. Bhaskara Nand Pant<br>2. Dr. Ram Swaroop Maharia                      |             |              |               |            |
| Session                                |   | 2022-2023  |             |              |               |            |

### Course Objective:

- This course gives a better understanding of the organic functional groups, which include halogenated hydrocarbons and oxygen containing functional groups and their reactivity patterns. The detailed reactions mechanistic pathways for each functional group will be discussed to unravel the spectrum of organic chemistry and the extent of organic transformations.

### Outcome of the course:

- Understand preparation, properties and reactions of haloalkanes, haloarenes and oxygen containing functional groups.
- Use the synthetic chemistry learnt in this course to do functional group transformations.
- To propose plausible mechanisms for any relevant reaction.

### List of Experiments:

| Details of the Lab Course |   |                             |
|---------------------------|---|-----------------------------|
| Session                   | Name of Experiment  | Contact Hours               |
| 1                         | Acetylation of one of the following compounds: amines (aniline, o-, m-, p- toluidines and o-, m-, panisidine) and phenols ( $\beta$ -naphthol, vanillin, salicylic acid) by any one method:<br>a. Using conventional method.<br>b. Using green approach | 8                           |
| 2                         | Benzoylation of one of the following amines (aniline, o-, m-, p- toluidines and o-, m-, p-anisidine) and one of the following phenols ( $\beta$ -naphthol, resorcinol, p- cresol) by Schotten-Baumann reaction.   | 8                           |
| 3                         | Oxidation of ethanol/ isopropanol (Iodoform reaction)   | 4                           |
| 4                         | Selective reduction of meta dinitrobenzene to m-nitroaniline  | 4                           |
| 5                         | Hydrolysis of amides and esters.  | 8                           |
| 6                         | Semicarbazone of any one of the following compounds: acetone, ethyl methyl ketone, cyclohexanone  | 8                           |
| 7                         | S-Benzylisothiuronium salt of one each of water soluble and water insoluble acids (benzoic acid, oxalic acid, phenyl acetic acid and phthalic acid)   | 8                           |
| 8                         | Aldol condensation using either conventional or green method.   | 4                           |
| 9                         | Functional group tests for alcohols, phenols, carbonyl and carboxylic acid group  | 4                           |
| 10                        | Mock Test   | 4                           |
| <b>Total</b>              |   | <b>60</b>                   |
| <b>Suggested Books:</b>   |   |                             |
| Sl. No.                   | Name of Authors/Books/Publishers  | Year of Publication/Reprint |
| 1                         | Mann, F. G.; Saunders, B. C. Practical Organic Chemistry, Pearson Education   | 2009                        |
| 2                         | Furniss, B.S.; Hannaford, A.J.; Smith, P.W.G.; Tatchell, A.R. Vogel's Textbook of Practical Organic Chemistry, Pearson.   | 2012                        |
| 3                         | Ahluwalia, V.K.; Aggarwal, R. Comprehensive Practical Organic Chemistry: Preparation and Quantitative Analysis, University Press.   | 2004                        |

### Evaluation Scheme:

| No. | Component                | Duration | Marks          |
|-----|--------------------------|----------|----------------|
| 1.  | Internal Assessment      |          | 25             |
|     | • Quiz/Viva              |          |                |
|     | • Observation & Record   |          |                |
|     | • Attendance             |          |                |
| 2.  | • Model Exam             | 5 hr     | 25             |
|     | End Semester Examination |          |                |
|     |                          |          | Total Marks 50 |