Birla Institute of Technology & Science, Pilani
Hyderabad Campus

SECOND SEMESTER 2023-2024

Course Handout (Part - II)

Date: 09-01-2024

This portion gives specific details regarding the course.

Course Number : **CHEM F242**

Course Title : **Chemical Experimentation-I**

Instructor-in-charge : **Dr. Arijit Mukherjee**

Team of Instructors : **Dr. Arijit Mukherjee, Dr. Nilanjan Dey**

1. Course Description: This course is based on laboratory experiments in the field of organic chemistry.

2. Scope and Objective: The main objective of this course is to educate the students about different concepts of organic chemistry by doing experiments. The students will carry out a set of experiments that will expose them to various experimental techniques in organic chemistry. Experiments will include qualitative and quantitative analysis of organic compounds, detection of functional groups, and identification of organic compounds in a given mixture by thin layer chromatography and separation of organic compounds from a mixture by solvent extraction method and column chromatography. Students will also carry out synthesis; and extraction of organic compounds from natural sources.

3. Text Book(s): Procedure of all the experiments will be provided.

4. Reference Book:

I. Qualitative Organic Analysis (2nd Indian Edition) by A. I. Vogel. CBS Publishers and Distributors.

II. A Microscale Approach to Organic Laboratory Techniques (6th edition) by D. L. Pavia, G. M. Lampman, G. S. Kriz, and R. G. Engel. Cengage Learning.

5. Course Plan: The students will perform a number of experiments individually in organic chemistry with an emphasis on individual planning and execution of the experiments.

6. Evaluation:

Component	Duration	Weightage (%)	Date & Time
Laboratory Test-1	TBA	20 (Open)	TBA
Laboratory Test-2	TBA	20 (Open)	TBA
Attendance, performance, and record checking	TBA	30 (Open)	Continuous
Lab quiz*	TBA	10 (Open)	Continuous
Comprehensive Quiz	TBA	20 (Closed)	TBA

*Lab quizzes may be conducted at regular intervals based on ongoing/previous experiments. Make-up will not be granted for quizzes.

7. Make-up policy: Makeup will be granted for genuine cases only. Make-up will not be granted for quiz.

8. Notice: All notices concerning the course will be displayed on **CMS.**

9. Academic Honesty and Integrity Policy: Academic honesty and integrity are to be maintained by all the students throughout the semester and no type of academic dishonesty is acceptable.

10. Final grading will be done based on the overall performance of a student in each of the components as listed in item 6. For mid-semester grading, progress made by a student up to that point in time would be evaluated.

It is MANDATORY to wear personal protective equipment (PPE) in the laboratory, such as lab coats, covered shoes, and safety goggles (as applicable). STUDENTS WON'T BE ALLOWED TO PERFORM ANY EXPERIMENT WITHOUT PPE.

A tentative list of experiments

1-5	Analysis of Organic Compounds (Elemental detection/Functional group tests for known or unkonown organic compounds)
6	Benzil-benzilic acid rearrangement
7	Nitration of methyl benzoate and hydrolysis of the resultant product to produce m-nitrobenzoic acid
8	Synthesis of aspirin
9	Reduction of benzophenone
10	Synthesis of 5-methyl-1,2-dihydro-3H-pyrazol-3-one/Keto-enol tautomerism
11	Conventional Diels-Alder reaction
12	Synthesis of anthranilic acid
13	Click reaction
14	Biginelli cyclocondensation reaction
15	Caffeine extraction
16	Separation of benzophenone from benzoic acid /Separation of aniline from benzoic acid
17-18	Separation of compounds by column chromatography
19-20	Estimation of glucose

Arijit Mukherjee

Instructor-in-charge
CHEM F242