

ACADEMIC UNDERGRADUATE STUDIES DIVISION
Second Semester 2024-25
Course Handout Part II

Date: 24/12/2024

In addition to part -I (general handout for all courses appended to the time-table) this portion gives further specific details regarding the course.

Course Number	CHEM F110
Course Title	CHEMISTRY LABORATORY
Instructor-in-Charge	Sourav Bag
Team of Instructors	Sumithra Kanakamma, K V G Chandra Sekhar, Krishnan Rangan, Manab Chakravarty, Amit Nag, Ramakrishnan Ganesan, Durba Roy, Himanshu Aggarwal, Nilanjan Dey, Satya Narayan Guin

1. Course Description: This course is based on laboratory experiments in different fields of chemistry. The course is conducted for first year students.

2. Scope and Objective: The main objective of this course is to educate the students with different aspects of experiments in chemistry. The students will carry out a set of experiments that will expose them to various experimental techniques like preparation of standard solution, chemical synthesis, filtrations, recrystallization, and operating of different scientific equipment for collecting data and analysis. Experiments in Organic and Inorganic chemistry will include synthesis and analysis of different compounds. Experiments in Physical chemistry will include pH metry, conductometry, spectrophotometry and chemical kinetics experiments.

3. Textbook(s): Chemistry Laboratory Manual

4. Reference Book: Reference sources for each experiment will be specified as necessary.

5. Course Plan: Students will perform selected experiments in Organic, Inorganic & Physical chemistry

List of Experiments:

1st Cycle

Lab 1	Synthesis and recrystallization of dibenzalacetone
Lab 2	Determination of the concentration equilibrium constant (K_c) of the reaction
Lab 3	Dissociation constant of a weak electrolyte by conductometry

Lab 4	Preparation of potassium bis(oxalate) Cu(II) complex and Preparation of iron acetyl acetonate complex
Lab 5	Synthesis of glucosazone
2nd Cycle	
Lab 6	Determination of the activation energy of hydrogen peroxide - potassium iodide clock Reaction
Lab 7	Determination of pH curve of an acid-base titration
Lab 8	Estimation of copper by Iodometry
Lab 9	Determination of the unknown strengths of a strong and a weak acid solution by conductometric titration

6. Evaluation:

Component	Duration	Weightage (%)	Date & Time	Type
Lab performance and Calculation, and data interpretation *		60		Open-Book, Continuous**
Midsem Quiz	60 min	20		Closed book
Lab exam	90 min	20		Practical examination

***Attendance and Punctuality, Laboratory Conduct, and Record maintenance = 15 M** will be important in the evaluation.

** All 9 (nine) experiments will be evaluated in the lab, and the **best eight will be considered**.

7. Make-up policy: There will be no makeup granted.

8. Notice: All notices concerning the course will be displayed on the Chemistry Department. Notice Board and/or CMS. **Lab manual, White Lab Coat with proper shoes covering the entire feet, and Safety goggles (as applicable) are compulsory.**

9. Academic Integrity Policy: It is expected that in compliance with institute rules and regulations, academic integrity should be adhered to in all the evaluation components. No type of academic dishonesty is acceptable, and malpractice in any form will have serious implications.

10. Final grading will be done based on the overall performance of a student in each of the components as listed in item no. 6. Minimum three experiments must be performed to obtain a valid grade.

Instructor-in-Charge
Chemistry Laboratory (Chem F 110)