



Kot, Bhalwal, Jammu



Model Institute of Engineering
& Technology (Autonomous)
Lab Handout

LABORATORY HANDOUT

ENGINEERING CHEMISTRY LAB(BSC-113)

CSE – 1st SEMESTER

ACADEMIC YEAR (2024-25)

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Department of Applied Sciences and Humanities



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Dr. Arun K. Gupta Teaching-Learning Centre

Version 1.1

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Please Do Not Print Unless Necessary



Course Code	Course Name	Course Type	Cd	L	T	P	Marks		
							Sessional	Final Exam	Total
BSC-113	Engineering chemistry Lab	BSC	1	0	0	2	50	-	50

COURSE OUTCOMES

COs	Description	PO Mapping
CO1	Understand the concept of stereochemistry in organic compounds	1,2,3,4,5,6,7
CO2	Summarize the chemical structure, molecular properties, vulcanization process and types of rubber and spectroscopy	1,2,3,4,5,6,7
CO3	Illustrate the concept to control air pollution, emission, and environmental health issues.	1,2,3,4,5,6,7
CO4	Use the knowledge to select an alloy for a particular application and understand the cement composition	1,2,3,4,5,6,7
CO5	Explain the process of water treatment and determine the hardness of water, Batteries,energetics and electrochemistry	1,2,3,4,5,6,7

LIST OF EXPERIMENTS

S.No.	Title
1	Find the total hardness of a sample of water by complexometric method (using EDTA)
2	Apply method of purification for organic compounds by column chromatography.
3	Prepare a pure and dry sample of Aspirin.
4	Prepare a pure and dry sample of Glucosazone
5	Determine the percentage of calcium oxide in cement.
6	Determine the surface tension of an unknown liquid Stalagmometer.
7	Determine the coefficient of viscosity of unknown liquid using Ostwald Viscometer
8	Calculate the percentage of CaCO ₃ in precipitated Chalk.
9	Find alkali content in antacid tablets.
10	Determine volumetrically the percentage of Cu in a sample of CuSO ₄ crystals, Z gems of which have been dissolved per litre, provided 0.1 N Na ₂ S ₂ O ₃ .
11	Compute the percentage of copper in brass.
12	Determine dissociation constant of weak acid (Acetic Acid) using PH - Meter
13	Estimate the acids in acid mixture conductometrically



ADDITIONAL WEB RESOURCES

1. VLAB LINK: [Virtual Labs | Chemical Engineering \(vlab.co.in\)](http://vlab.co.in)
by IIT Kharagpur which gives hands-on experience to the students.

LAB REPORT INSTRUCTIONS

- Provide specific title of the lab experiment.
- Theory: Provide a concise abstract (typically 100-200 words) that summarizes the purpose, methods, key findings, and significance of the experiment.
- Materials/ Equipment: List all materials, components, and equipment used in the experiment. Include specifications when applicable.
- Software/Simulation Tools:
- Experimental Procedure: Describe the step-by-step procedure for conducting the experiment. Be detailed and clear in your instructions. Include diagrams or schematics to illustrate the setup, connections, and component placement. Explain any variations or adjustments made to the standard procedure.
- Observation & Calculations/Analysis: Detail the data you collected during the experiment. Include descriptions of measurements and any calculations made. Use tables, charts, or graphs to present data clearly. Discuss any trends, patterns, or significant observations. Interpret the data in the context of the experiment's objectives. Ensure that all figures, tables, and equations are correctly labeled.
- Results: Summarize the key findings of the experiment. Present results in a clear and organized manner using tables and graphs. Include units of measurement and labels for data points.
- Conclusion: Provide a concise summary of the experiment's key points and outcomes.

GRADING AND ASSESSMENT

- **Continuous Evaluation:** 30 marks
- **Final Demo & Viva:** 10 marks
- **Attendance:** 10 marks
- **Lab Overall Marks:** 50 marks

COURSE POLICIES

- **Attendance:** Minimum 75% attendance is mandatory to appear in the final examination of the course.
- **Late Submissions:** Manuals and projects must be submitted by the specified timelines.

FACULTY INFORMATION

- **Office Hours**
Monday (12:05 PM - 12:55 PM)
Friday (12:05 PM - 12:55 PM)
- **Contact Information**



RUBRICS FOR LAB CONTINUOUS EVALUATION

Parameters	Performance			Marks
	Low	Medium	High	
Execution of the Experiment	Student was not able to setup and conduct the Experiment completely	Student was able to setup and conduct the experiment but measurement/ results/ observations were not correct	Students was able to set and conduct the experiment and the measurement/ results/ observations were not correct	10
	0-2 Marks	3-6 Marks	7-10 Marks	
Record	Student was not able to describe the detailed procedure and could not record the measurement.	Student was able to describe the detailed procedure partially or with some inaccuracy.	Student was able to describe the detailed procedure accurately and record all measurements correctly.	10
	0-2 Marks	3-6 Marks	7-10 Marks	
Viva Voice	Students could not demonstrate sufficient knowledge of foundation, functional or applied aspects related to the experiment during viva.	Students demonstrated sufficient knowledge of foundation, functional or applied aspects related to the experiment during viva.	Students demonstrate strong knowledge of foundation, functional or applied aspects related to the experiment during viva	10
	0-2 Marks	3-6 Marks	7-10 Marks	
Total Marks				30