

Lecture Plan

Name of the College: Government College of Arts, Science and Commerce Sanquelim - Goa		
Name of Faculty: Mr. Sujay S. Sawant	Subject: Chemistry (Basics of Chemical Laboratory Management)	
Paper code: CHC - 221	Program: S.Y.BSc	Division: -
Academic year: 2024 - 2025	Semester: IV	Total Lectures: 15
COURSE OBJECTIVES <ol style="list-style-type: none"> 1. To train students in basics of managing a chemical laboratory 2. To apprise students with safety measures in a chemistry laboratory 3. To acquaint with the chemicals, reagents, apparatus, electrical appliance and equipment in chemistry laboratory 4. Introduce students to different terms to label strength of solution. 		
Course Outcome: At the end of the course student will be able to - <ol style="list-style-type: none"> 1. implement necessary precaution while working in chemical laboratory 2. apply procedure of management, purchase and storage. 3. identify and classify common glassware and apparatus, prepare standard solutions and know the basics of Identify and classify different glasswares 4. Prepare solution of different strength/volume and know the different terms used for labeling concentration. 5. Identify and classify different types electrodes 6. Interpret hazard symbols and labels of supplied commercial chemicals 		
Student Learning Outcome: At the end of the course students will be able to : <ul style="list-style-type: none"> • Demonstrate knowledge about general safety measures, personal protection, and proper conduct in a chemical laboratory. • Identify and manage chemical storage, laboratory tidiness, waste disposal, and accident procedures effectively. 		

- Recognize and mitigate risks associated with chemical hazards
- Handle reactive inorganic reagents safely
- Analyze the health hazards caused by toxic chemicals, carcinogens, and apply preventive measures to minimize exposure.

Month	Lecture From	Lecture To	No. of lecture s allotted	Topic, Subtopic to be covered	Exercise/ Assignment	ICT Tools	Reference books
December	09/12/24	13/12/24	1	Instruction for safe working in chemical laboratory- Personal protection, conduct in laboratory	Discuss PPE requires while working in Laboratory	Powerpoint Presentation / Smart Board	[1-3]
	15/12/24	20/12/24	2	tidiness, cleanliness, accident procedures, after hour working	Explain different accident procedures	Powerpoint Presentation / Smart Board	[1-3]
	23/12/24	31/12/24	CHRISTMAS BREAK				
January	02/01/25	10/01/25	1	Storage of chemical laboratory		Powerpoint Presentation / Smart Board	[1-3]
	13/01/25	17/01/25	1	glassware, waste disposal		Powerpoint Presentation / Smart Board	[1-3]
	20/01/25	24/01/25	1	ISA 1	--	--	--
	27/01/25	31/01/25	1	Explosion and fire Hazards- General aspects, Explosive compounds, potentially dangerous mixture	Discuss possible hazards	Powerpoint Presentation / Smart Board	[1-3]
February	01/02/25	07/02/25	1	some specific dangers of explosion, Fire hazards		Powerpoint Presentation / Smart Board	[1-3]
	10/02/25	15/02/25	1	Dangerous operation in Laboratory, Conduct of explosive or violent		Powerpoint Presentation / Smart	[1-3]

				reaction.		Board	
	17/02/25	22/02/25	1	Reactive inorganic reagents- Strong Acids, Strong Bases, Halogens, Reactive halides,		Powerpoint Presentation / Smart Board	[1-3]
	24/02/25	28/02/25	1	Chromium trioxide, chromate and dichromates		Powerpoint Presentation / Smart Board	[1-3]
March	03/03/25	07/03/25	1	Hazards due to toxic chemical- ingestion, Inhalation, Direct absorption		Powerpoint Presentation / Smart Board	[1-3]
	10/03/25	15/03/25	1	Highly toxic solids, toxic gases, Other harmful substance, Carcinogenic substance.		Powerpoint Presentation / Smart Board	[1-3]
	17/03/25	21/03/25	1	defining concentration in terms of Molarity, Molality, Normality	Calculations	Powerpoint Presentation / Smart Board	[2,3]
	24/03/25	31/03/25	1	defining concentration in terms of ppm, ppb	Calculations	Powerpoint Presentation / Smart Board	[2,3]
April	07/04/25	11/04/25	1	defining concentration in terms of mole fraction, percentage + Revision	Calculations + Revision	Powerpoint Presentation / Smart Board	[2,3]

References :

1. National Research council of Naional Academies, Prudent Practices in Laboratory-handling and management of chemical hazards. The National Academies press. Washington D.C 2001
2. G.H. Jeffery, J. Bassett, J. Mendham, R. C. Denny.Vogel's Textbook of Quantitative Chemical Analysis, 5th edition, Longman Scientific and Technicals England.1989
3. Brian S. Furniss, Antony J. Hannaford, Peter W.G.Smith, Austin R. tatchell.Vogel's Textbook of practical Organic chemistry,5th edition,8th impression 2011 Publisher- Person education Ltd England 1989

**Assessment
Rubrics**

Component	Max Marks
ISA	15
Practical	25
Semester End Exam	60
Total	100