

Semester Lecture Plan
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<b>Name of the college: Government College of Arts, Science &amp; Commerce, Sanquelim-Goa</b>		
<b>Name of Faculty: Ms. Sampada Bhide</b>	<b>Subject: Chemistry</b>	
<b>Paper code: CHC-221 (Minor Vocational-1)</b>	<b>Program/Course: S.Y. B.Sc. (minor)</b>	<b>Division: -</b>
<b>Academic year: 2024 - 2025</b>	<b>Semester: IV</b>	<b>Total Lectures: 15 (Theory)</b>
<b>Course Objectives:</b> <ol style="list-style-type: none"> <li>1. To train students in basics of managing a chemical laboratory</li> <li>2. To apprise students with safety measures in a chemistry laboratory</li> <li>3. To acquaint with the chemicals, reagents, apparatus, electrical appliance and equipment in chemistry laboratory</li> <li>4. Introduce students to different terms to label strength of solution.</li> </ol>		
<b>Course Learning Outcome:</b> <ol style="list-style-type: none"> <li>1. implement necessary precaution while working in chemical laboratory</li> <li>2. apply procedure of management, purchase and storage.</li> </ol>		

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

Month	Lectures From	Lectures To	No. of lectures allotted	Topic, Subtopic to be covered	Exercise/Assignment	ICT Tools	Reference books
January	01/01/2025	05/01/2025	01	Common Apparatus and glassware: introduction, Balances		Smart board	Ref 1 and 5
January	06/01/2025	11/01/2025	01	Balances: The analytical balance, non-analytical balance, weight and reference masses		Smart board	Ref 1 and 5
January	13/01/2025	18/01/2025	01	Care and uses of analytical balances, errors in weighing,		Smart board	Ref 1 and 5
January	20/01/2025	25/01/2025	01	Graduated glassware-units of volume, Graduated apparatus, Temperature standards, graduated flask, pipettes,		Smart board	Ref 1 and 5
January-February	27/01/2025	01/02/2025	01	Burettes, weight burettes, Piston burettes, Graduated (measuring) cylinders.		Smart board	Ref 1 and 5
February	03/02/2025	08/02/2025	01	Water for laboratory use- purified water, wash bottles General apparatus-glassware, ceramics,		Smart board	Ref 1 and 5

February	10/02/2025	15/02/2025	01	plastic ware, heating apparatus, Desiccators and dry boxes, stirring apparatus, filtration apparatus, weighing bottles.		Smart board	Ref 1 and 5
February	17/02/2025	22/02/2025	01	Types of ground joints, care and maintenance of ground glass joints		Smart board	Ref 1 and 5
February-March	24/02/2025	01/03/2025	01	Apparatus for preparative organic chemistry, other types of interchangeable joints and stopcocks		Smart board	Ref 1 and 5
March	03/03/2025	08/03/2025	01	Use of cocks and rubber stopper cutting and bending of glass tubing.		Smart board	Ref 1 and 5
March	10/03/2025	15/03/2025	01	Construction, working and maintenance of following cells and electrodes: introduction, conductivity cell		Smart board	Ref 1 and 4
March	17/03/2025	22/03/2025	01	Reference electrode, Saturated Calomel electrode,		Smart board	Ref 1 and 4
March	24/03/2025	29/03/2025	01	hydrogen electrode, silver electrode,		Smart board	Ref 1 and 4
March-April	31/03/2025	05/04/2025	01	working electrode- platinum electrode, copper electrode,		Smart board	Ref 1 and 4
April	07/04/2025	12/04/2025	01	zinc electrode + revision		Smart board	Ref 1 and 4

**Reference Books:**

1. 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
2. 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
3. National Research council of National Academies, Prudent Practices in Laboratory-handling and management of chemical hazards. The National Academies press. Washington D.C 2001
4. John O'M Bockris, Amulya K.. Reddy Modern Electrochemistry 1 Ionics , 2nd Edition, , Publisher-Springer, UK 1989
5. John Kenkel, Analytical chemistry for Technicians 4th edition, CRC press, Tylor & Francis Group, Boca Raton, London, 2013

**\* Assessment Rubrics**

Component	Max Marks
ISA 1	7.5
ISA 2	7.5
ISA 3	7.5
Practical exam	25
Semester End Exam	60

Total 100

\*Best two ISA will be considered