

Semester Lecture Plan
-----------------------

<b>Name of the college:</b> Government College of Arts, Science & Commerce, Sanquelim-Goa		
<b>Name of Faculty:</b> Dr. Dattaprasad D Narulkar	<b>Subject:</b> Chemistry	
<b>Paper code:</b> CHC-111 (Basic concept in Chemistry)	<b>Program/Course:</b> F.Y. B.Sc. (minor)	<b>Division:</b> -
<b>Academic year:</b> 2024 - 2025	<b>Semester:</b> II	<b>Total Lectures:</b> 30 (Theory)
<b>Course Objectives:</b> 1. To discuss different theories of periodic table and classification of elements and trends in periodic table. 2. To explain different acid-bases theories 3. To define the terms and state laws involved in thermodynamics		
<b>Course Learning Outcome:</b> 1. Student will be able to explain theories and trends in periodic table and the classification of elements. 2. Student will be able to compare, distinguish and apply different acid-base theories. 3. Student will be able to define the terms and state laws involved in thermodynamics.		

Month	Lectures From	Lectures To	No. of lectures allotted	Topic, Subtopic to be covered	Exercise/Assignment	ICT Tools	Reference books
December	9/12/2024	14/12/2024	02	<b>Introduction to the Periodic Table</b> Development of the periodic table- Dobereiner's Triads, Newland's Law of Octaves		Smart board	Ref 1 and 2
December	16/12/2024	21/12/2024	02	Newland's Law of Octaves, Modern periodic table		Smart board	Ref 1 and 2
December-January	23/12/2024	01/01/2025		Christmas Break			
January	06/01/2025	11/01/2025	02	Modern periodic table, (Theories and limitations of Mendeleev's periodic table and Modern periodic table).		Smart board	Ref 1 and 2
January	13/01/2025	18/01/2025	02	(Theories and limitations of Mendeleev's periodic table and Modern periodic table), Classification of the elements into s,p,d and f -block elements on the basis of electronic configuration (Continued)		Smart board	Ref 1 and 2
January	20/01/2025	25/01/2025	02	Classification of the elements into s,p,d and f -block elements on the basis of electronic configuration (Continued)		Smart board	Ref 1 and 2
January-February	27/01/2025	01/02/2025	02	Trends in the periodic table (atomic and ionic size)	Assignment on periodic table	Smart board	Ref 1 and 2

February	03/02/2025	08/02/2025	02	<b>Acid- Base Theories</b> Arrhenius Concept, Bronsted Theory		Smart board	Ref 1 and 2
February	10/02/2025	15/02/2025	02	Bronsted Theory (continued), The Lux – Flood Solvent Systems		Smart board	Ref 1 and 2
February	17/02/2025	22/02/2025	02	Solvent System theory		Smart board	Ref 1 and 2
February-March	24/02/2025	01/03/2025	02	Lewis Concept of Acids and Bases. (Theories and limitations)	Examples of acids and bases and categorization based on various theory	Smart board	Ref 1 and 2
March	03/03/2025	08/03/2025	02	<b>Thermodynamics I:</b> Definition of thermodynamic terms, system, surroundings etc. Types of thermodynamic systems and thermodynamic processes.		Smart board	Ref 1 and 2
March	10/03/2025	15/03/2025	02	Intensive and extensive properties. Concept of heat and work, first law of thermodynamics,			
March	17/03/2025	22/03/2025	02	definition of internal energy and enthalpy. Heat capacity –heat capacities at constant volume and at constant pressure and their relationship,		Smart board	Ref 1 and 2

March	24/03/2025	29/03/2025	02	calculation of $w$ , $q$ , $dU$ & $dH$ for the expansion of ideal gases under isothermal and reversible conditions (Numerical problems)		Smart board	Ref 1 and 2
March-April	31/03/2025	05/04/2025	02	Solutions of liquids in liquids, Raoult's law and deviation from Raoult's Law		Smart board	Ref 1 and 2
April	07/04/2025	11/04/2025	02	Revision		Smart board	Ref 1 and 2

**Reference Books:**

1. J. D. Lee, *Concise Inorganic Chemistry*, 5th Edn. Wiley India. 2003.
2. P. W. Atkins, T. L. Overton, J. P. Rourke, M. T. Weller & F. A. Armstrong, *Shriver & Atkins' Inorganic Chemistry*, 5th Edn.; Oxford University Press. 2010..
3. F. A. Cotton, G. Wilkinson and P. L. Gaus, *Basic Inorganic Chemistry*. 3rd Edn. Wiley India. 2007.
- 4.. B. R. Puri, L. R. Sharma and K. C. Kalia, *Principles of Inorganic Chemistry*, 33<sup>rd</sup> Edn, Vishal Publishing Co. 2020.

**\* Assessment Rubrics**

Component	Max Marks
ISA 1	10
ISA 2	10
ISA 3	10
Semester End Exam	80

Total 100

\*Best two ISA will be considered