

CURRICULUM PLAN

(Odd Semester, 2024-2025)

B.Sc. (H) Chemistry, I Year (Semester I), NEP-UGCF 2022

Name of the teacher: Dr. Upasana Issar

Name of Paper: Gaseous and Liquid State (DSC-3: Physical Chemistry-I)

UPC: 2172011103

One Lecture Per Week

Contents	Allocation of Lectures	Month wise schedule to be followed	Tutorial/Assignments /Presentation etc
Unit 1: Gaseous state <ul style="list-style-type: none">• Kinetic theory of gases- postulates and derivation of kinetic gas equation,• Behaviour of real gases- Compressibility factor, Z, Variation of compressibility factor with pressure at constant temperature (plot of Z vs P) for different gases (H₂, CO₂, CH₄ and NH₃), Cause of deviations from ideal gas behaviour and explanation of the observed behaviour of real gases in the light of molecular interactions• van der Waals (vdW) equation of state, Limitations of ideal gas equation of state and its modifications in the form of derivation of van der Waal equation, Physical significance of van der Waals constants, application of van der Waal equation to explain the observed behaviour of real gases.	08	30 th August 2024 – 25 th October 2024	<ul style="list-style-type: none">• Syllabus Overview• Books Suggestions• Related Examples and Problem solving session
Unit 1 (Continued) <ul style="list-style-type: none">• Maxwell distribution of molecular velocities and its use in evaluating average, root mean square and most probable velocities and average kinetic energy. Definition, expression, applications and temperature and pressure dependence of each one of the following properties of ideal gases: Collision frequency,			

Collision diameter, Mean free path. Coefficient of viscosity, definition, units and origin of viscosity of gases, relation between mean free path and coefficient of viscosity, temperature and pressure dependence of viscosity of a gas, calculation of molecular diameter from viscosity	07	4 th November 2024- 20 th December 2024	<ul style="list-style-type: none">• Numerical Solving• Doubt Session• Previous university papers discussion
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Dr. Upasana Issar

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