Curriculum Plan (Odd Semester 2024-25)

Teacher Name: **Dr. Sajid Iqbal**
Course: B.Sc. (H) Chemistry, UGCF-NEP-2020, Sem-I
Paper Name: DSC-3: Gaseous and Liquid (1 period per week)   **Paper Shared with Dr. Upasana Issar**

S. No	Contents	Allocation of Lectures	Month wise schedule to be followed	Assignments/ Presentations etc
1.	**Liquid state** Nature of liquid state, qualitative treatment of the structure of the liquid state Physical properties of liquids-vapour pressure, its origin and definition, Vapour pressure of liquids and intermolecular forces, and boiling point Surface tension, its origin and definition, Capillary action in relation to cohesive and adhesive forces, determination of surface tension by (i) using stalagmometer (drop number and drop mass method both) and (ii) capillary rise method, Effects of addition of sodium chloride, ethanol and detergent on the surface tension of water and its interpretation in terms of molecular interactions, Role of surface tension in the cleansing action of detergents Coefficient of viscosity and its origin in liquids, Interpretation of viscosity data of pure liquids (water, ethanol, ether and glycerol) in the light of molecular interactions, Effects of addition of sodium chloride, ethanol and polymer on the viscosity of water, relative viscosity, specific viscosity and reduced viscosity of a solution, comparison of the origin of viscosity of liquids and gases, effect of temperature on the viscosity of a liquid and its comparison with that of a gas.	6	30th August - 3rd week of September	• Overview of Syllabus • Discussion of Concept • Numerical Problem Solving • Doubt Session • Class Test
2.	Barometric distribution law, its derivation and applications, alternative forms of barometric distribution law in terms of density and number of molecules per unit volume, effect of height, temperature and molecular mass of the gas on barometric distribution **Isotherms of real gases-** Critical state, relation between critical constants and van der Waals constants, correlation of critical temperature of gases with intermolecular forces of attraction, Continuity of states, Limitations of van der Waals equation, Reduced equation of state and law of corresponding states (statement only). **Virial equation of state-** Physical significance of second and third virial coefficients, van der Waals equation expressed in virial form, Relations between virial coefficients and van der Waals constants.	6	4th week of September – 3rd week of December	• Discussion of Concept • Numerical Problem Solving • Doubt Session • Class Test • Previous Year Paper Discussion