Lesson Plan

MCM DAV College for Women, Sector – 36A, Chandigarh
Monthly Teaching Plans (Odd Semester)
Session – (2023-24)

Name of the Teacher/s: Dr. Renu and Dr. Archana

Department: Chemistry

Class: B.Sc. I **Subject:** Physical Chemistry

S. No.	Date (Monthly)		Topics to be Covered	Academic Activity Undertaken*
	From	To		
1	26-07-2023	19-08-2023	Unit 1: Mathematical Concepts and Evaluation of Analytical Data: Logarithmic relations, curve sketching, linear graphs and calculation of slopes, differentiation and integration of functions like ex, xn, sin x, log x; maxima and minima, partial differentiation and reciprocity relations. Terms of mean and median, precision and accuracy in chemical analysis, determining accuracy of methods, improving accuracy of analysis, data treatment for series involving relatively few measurements, linear least squares curve fitting, types of errors, standard deviation.	Lecture method, Online sources
2	21-08-2023	12-09-2023	Unit-II: Gaseous States: Postulates of kinetic theory of gases, deviation from ideal behavior, Van der Waal's equation of state. Critical Phenomena: PV isotherms of real gases, continuity of states, the isotherms of Van der Waal's equation, relationship between critical constants and Van der Waal's constants, the law of corresponding states, reduced	Lecture method

			equation of state. Molecular Velocities: Root mean square, average and most probable velocities. Qualitative discussion of the Maxwell's distribution of molecular velocities, collision number, mean free path and collision diameter. Liquification of gases (based on Joule-Thomson effect).	
3	13-09-2023	30-09-2023	Unit-III: Chemical Kinetics-1 Chemical kinetics and its scope, rate of a reaction, factors influencing the rate of a reaction-concentration, temperature, pressure, solvent, light, catalyst. Concentration dependence of rates, mathematical characteristics of simple chemical reactions – zero order, first order, second order, pseudo-order, half-life and mean life.	Lecture Method, Online Sources
4	03-10-2023	25-10-2023	Determination of the order of reaction – differential method, method of integration, method of half-life period and isolation method. Unit-IV: Chemical Kinetics-II Theories of Chemical Kinetics: Effect of temperature on rate of reaction, Arrhenius equation, concept of activation energy.	Lecture Method
5.	26-10-2023	Till exam	Simple collision theory based on hard sphere model, transition state theory (equilibrium hypothesis). Expression for the rate constant based on equilibrium constant and thermodynamic aspects. Catalysis and general characteristics of catalytic reactions, Homogeneous catalysis, acid-base catalysis and enzyme catalysis including their mechanisms, Michaelis Menten equation for enzyme catalysis and its mechanism.	
Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans				

30th August, 2023	The teachers have completed the scheduled chapters and topics as shown in the lesson plan
Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans	
29th Sept, 2023	The teachers have completed the scheduled chapters and topics as shown in the lesson plan
Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans	
31st Oct, 2023	The teachers have completed the scheduled chapters and topics as shown in the lesson plan
Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans	
22nd Nov, 2023	The teachers have completed the scheduled chapters and topics as shown in the lesson plan
Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans	

***Any of these** – (i) Lecture Method; (ii) PPT; (iii) Online Sources; (iv) Group Discussion; (v) Case Studies etc.Other Methods adopted by the teacher – Please write the specific teaching method

Lesson Plan
MCM DAV College for Women, Sector – 36A, Chandigarh
Monthly Teaching Plans (Even Semester)
Session – (2023-24)

Name of the Teacher/s: Dr. Renu and Dr. Archana

Department: Chemistry

Class: B.Sc. I **Subject:** Physical Chemistry

S.No.	Date (Monthly)		Topics to be Covered	Academic Activity Undertaken*
	From	To		
1	09 -01- 2024	28-01-2024	Unit 1: Thermodynamics I Definition of Thermodynamic Terms: System, surroundings etc. Types of systems, intensive and extensive properties. State and path functions and their differentials. Thermodynamic process. Concept of heat and work. First Law of Thermodynamics: Statement, definition of internal energy and enthalpy, Heat capacity, heat capacities at constant volume and pressure and their relationship. Joule's Law-Joule-Thomson coefficient and inversion temperature. Calculations of w, q, dU & dH for the expansion of ideal gases under isothermal and adiabatic conditions for reversible process.	**Lecture method, Online sources**
2	29.01.2024	27.02.2024	Unit-II: Thermochemistry Standard state, standard enthalpy of formation-Hess's Law of constant Heat Summation and its applications. Heat of reaction at constant pressure and at constant volume. Enthalpy of neutralization. Bond dissociation energy and its calculation from	**Lecture method**

			thermo-chemical data, temperature dependence of enthalpy. Kirchoff's equation.	
3	28.02.2024	23.03.2024	Unit-III: Colloidal State Definition of colloids, classification of colloids. Solids in liquids (sols): Properties – kinetic, optical and electrical; stability of colloids, protective action, Hardy-Schulze rules, gold number. Liquids in liquids (emulsions) : Types of emulsions, preparation. Emulsifier. Liquids in solids (gels): Classification, preparation and properties, inhibition, general applications of colloids.	**Lecture Method, Online Sources**
4	24.03.2024	Till exam	Unit-IV: Solutions, Dilute Solutions and Colligative Properties: Ideal and non-ideal solutions, methods of expressing concentrations of solutions, activity and activity coefficient. Dilute solution, colligative properties, Raoult's law, relative lowering of vapour pressure, molecular weight determination. Osmosis, law of osmotic pressure and its measurement, determination of molecular weight from osmotic pressure. Elevation of boiling point and depression of freezing point, Thermodynamic derivation of relation between molecular weight and elevation in boiling point and depression of freezing point. Experimental methods for determining various colligative properties.	**Lecture Method**

Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans	
30th Jan, 2024	The teachers have completed the scheduled chapters and topics as shown in the lesson plan
Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans	
24th Feb, 2024	The teachers have completed the scheduled chapters and topics as shown in the lesson plan
Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans	
28th, March 2024	The teachers have completed the scheduled chapters and topics as shown in the lesson plan
Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans	
19th April, 2024	The teachers have completed the scheduled chapters and topics as shown in the lesson plan

***Any of these** – (i) Lecture Method; (ii) PPT; (iii) Online Sources; (iv) Group Discussion; (v) Case Studies etc.Other Methods adopted by the teacher – Please write the specific teaching method