

DEPARTMENT OF APPLIED SCIENCES



LESSON PLAN

Academic Year	2026-27
Semester	Ist
Subject Code	BS106
Subject Title	Applied Chemistry
Name of Faculty	Rajender Kumar
Semester Start & End Dates	01.08.2026-28.11.2026

STUDY AND EVALUATION SCHEME

Sr. No.	Name of the Subject	L	P	Internal Assessment			External Assessment					Total Marks
				Th	Pr	Total	Th	Hrs	Pr	Hrs	Total	
3.2	Applied Chemistry	3	2	50	50	100	100	3	100	3	200	300

Subject Details:

Day	Unit & Topic of Discussion	Topic Details	Delivery Method
Unit-1 : Atomic Structure & Chemical Bonding			
Day 1	Atomic Structure	Fundamental particles-electrons, protons and neutrons (Definitions)	Chalk & Talk
Day 2	Atomic Structure	Bohr's Theory, successes and limitations of atomic theory	Chalk & Talk & PPT
Day 3	Atomic Structure	Atomic Number, atomic mass, isotopes, isobars and isotones, Concept of orbitals	Chalk & Talk
Day 4	Atomic Structure	difference between orbit and orbitals, shapes of s and p orbitals	Chalk & Talk
Day 5	Atomic Structure	quantum Numbers (Significance only), Aufbau's principle, Pauli's exclusion principles, Hund's rule of maximum multiplicity, electronic configuration of elements with atomic number (Z) 1 to 30 only	Chalk & Talk

Day 6	Atomic Structure	Chemical Bonding – Definition of Chemical Bond, Types of Bond : Ionic bond (NaCl) and covalent bond (O ₂ , N ₂ , H ₂) . difference between sigma and pie bond.	Chalk & Talk
Unit-2 : Solutions & Water			
Day 9	Solutions & Water	Definition of Solution, Solute and Solvent with examples, Methods to express the concentration of solutions -Molarity, Molality and Normality (Numerical excluded)	Chalk & Talk
Day 10	Solutions & Water	PH of solution, industrial application of PH solution, Definition of buffer solution and industrial application of buffer solution.	Chalk & Talk
Day 11	Solutions & Water	Definition of Hard and soft water, Types of hardness,	Chalk & Talk
Day 12	Solutions & Water	Units of hardness (mg/l and ppm), simple numerical based on hardness	Chalk & Talk
Day 13	Solutions & Water	Disadvantages caused by use of hard water in domestic and industrial use,	Chalk & Talk
Day 14	CLASS TEST-1	1st 30 % syllabus is Covered	
Day 15	Solutions & Water	Removal of hardness -permutit process Characteristics of drinking water.	
Unit-3 : Electro- Chemistry and Corrosion			
Day 17	Electrochemistry and Corrosion	Electronic concept of oxidation, reduction and Redox reaction	Chalk & Talk
Day 18	Electrochemistry and Corrosion	Definition of Electrolyte and non -electrolyte with suitable examples, Faradays law of Electrolysis	Chalk & Talk
Day 19	Electrochemistry and Corrosion	industrial application of electrolysis (Electrometallurgy, Electroplating, Electro-refining)	Chalk & Talk
Day 20	Electrochemistry and Corrosion	Application of redox reactions in electrochemical cells – • Primary cells – dry cell, • Secondary cell - commercially used lead acid storage battery ³ Industrial application of Electrolysis.	Chalk & Talk
Day 21	Electrochemistry and Corrosion	Introduction to Corrosion of metals – definition, types of corrosion	Chalk & Talk
Day 22	Electrochemistry and Corrosion	Introduction to corrosion of metals - definition, Internal corrosion preventive measure (purification, alloying and heat	Chalk & Talk

Chalk & Talk	Day 23	Electrochemistry and Corrosion	treatment) and External corrosion preventive measure: Metal coating (anodic, cathodic).	Chalk & Talk
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Unit-4 : Engineering Materials & Polymer

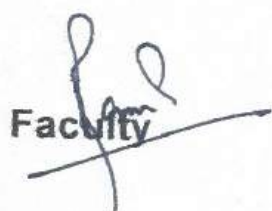
Day 26	Engineering Materials & Polymer	Natural occurrence of metals- minerals, ores; ores of iron, aluminium and copper, Definition of Gangue, Flux, Metallurgy, Pyrometallurgy, Electrometallurgy, & Hydrometallurgy	Chalk & Talk
Day 27	Engineering Materials & Polymer	a brief account of general principles of metallurgy- Crushing, Grinding; Concentration of ore (Froth flotation Process	Chalk & Talk
Day 28	Engineering Materials & Polymer	Extraction of metal (Roasting, Calcination & Smelting), Refining (Electrorefining	Chalk & Talk
Day 29	Engineering Materials & Polymer	Extraction of iron from their Haematite ore by using blast furnace in brief along with diagram, Alloys- definition, Ferrous and non- ferrous alloy	Chalk & Talk
Day 30	Class Test -II	2 ND 30 % Syllabus is covered	Chalk & Talk
Day 31	Engineering Materials & Polymer	purpose of making alloy. Definition of Polymer	Chalk & Talk an
Day 32	Engineering Materials & Polymer	Monomer, Degree of Polymerization, name of monomer and simple reaction involved in preparation of Polythene, PVC, PTFE, PS and Nylon-6,6 only.	Chalk & Talk and Ppt

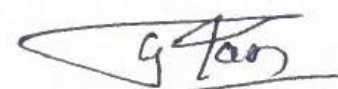
Unit-5 : Chemistry of Fuels and Lubricants

Day 34	Chemistry of Fuels and Lubricants	Definition of fuels, Classification of fuels	Chalk & Talk
Day 35	Chemistry of Fuels and Lubricants	80% syllabus is covered	Chalk & Talk
Day 36	Chemistry of Fuels and Lubricants	Characteristics of a good fuel, Calculation of HCV and LCV by using Dulong's formulas	Chalk & Talk
Day 37	Chemistry of Fuels and Lubricants	Fuel rating (octane and cetane numbers), Chemical composition, Calorific value application and diagram of water gas, producer gas and biogas	Chalk & Talk

Day 38	Chemistry of Fuels and Lubricants	Definition of Lubricants, Function of good lubricants,	Chalk & Talk
Day 39	Chemistry of Fuels and Lubricants	Physical properties (Viscosity, viscosity index, flash and fire point	Chalk & Talk
Day 40	Chemistry of Fuels and Lubricants	Chemical properties (TAN, Saponification value) of lubricants	Chalk & Talk
Day 41	Solutions & Water	Numerical and applications	Chalk & Talk
Day 42	Class Test -2nd	Doubt clearing C.T-2	Discussion
Day 43	Engineering Materials	Numerical and doubt clearing session	Chalk & Talk
Day 44	Polymer	Simple reactions involved in polymers.	Chalk & Talk
Day 45	Unit -1-5	Previous Year Question papers	Discussion

	Name of Book	Author Name	Publication
Prescribed Books	Modern ABC of Chemistry	Dr.S.P. Jauhaar	Modern Publication
Reference Books	Engineering Chemistry	PC Jain & Monika Jain	Dhanpat rai publications
	A Text book of Engineering Chemistry	P.K. Vij & shiksha vij	Katsons books S.K. kataria sonsPublication
	A Text book of Engineering Chemistry	OG palana	Mc grow Hill Education Publishers


Faculty


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