LESSON PLAN- Dr Som Sharma

GOVT. P.G. COLLEGE BHUNA (FATEHABAD)
Lesson Plan (July 2025 to November 2025)

Name of the Assistant/ Associate Professor : Dr Som Sharma
Class and Section: BSc in Physical Science, 3rd sem
Subject : DSC Chemistry

Date	Week	Topic
28.7.2025 TO 30.7.2025	1st	**UNIT-I, p-block elements,** Electronic configuration, atomic and ionic size, metallic character, melting point, ionization energy, electron affinity, oxidation states, electronegativity, inert pair effect and diagonal relationship of 13, 14, 15, 16 & 17 group, **Boron family (13th group):,** Diborane: Preparation, properties, and structure (as an example of electron deficient compound and multicentre bonding).
04.8.2025 TO 6.8.2025	2nd	Borazine- chemical properties and structure, relative strength of Trihalides of Boron as Lewis acids, structure of aluminium (III) chloride, **Carbon family (14th):**, Catenation, Carbides, silicates (structural aspects), **Nitrogen family (15th group):** , Oxides: Structure of oxides of nitrogen and phosphorus, Oxyacid: Structure and relative acidic strength of oxyacids of nitrogen and phosphorus, structure of white, black and red phosphorus
11.8.2025 TO 13.8.2025	3rd	**Oxygen family (16th group):,** Oxy acids of sulphur – structure and acidic strength, Hydrogen Peroxide – properties and uses, **Halogen family (17th group):,** Interhalogen compounds (their properties and structures), oxy acids of chlorine – structure and comparison of acidic strength
18.8.2025 TO 20.8.2025	4th	**Unit-II, Electrochemistry-I,** Electrolytic conduction, factors affecting electrolytic conduction, specific conductance, molar conductance, equivalent conductance and relation among them, their variation with concentration, Arrhenious theory of ionization, Ostwald's dilution laW, Assignment
25.8.2025 TO 27.8.2025	5th	Kohlrausch's law and its applications in calculation of conductance of weak electrolytes at infinite dilution (numerical), Applications of conductivity measurements : determination of degree of dissociation, determination of solubility product of sparingly soluble salts, Class test
31.8.2025 TO 02.9.2025	6th	Definition of pH and pK_a, Buffer solution, Buffer action, Handerson-Hazel equation, Buffer mechanism of buffer action, **Thermodynamics-I**, Definition of thermodynamic terms: system, surroundings, Types of system, intensive and extensive properties, state and path functions and their differentials,

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9.9.2025 TO 10.9.2025	7th	Thermodynamic process, concept of heat and work, Zeroth law of thermodynamics. First law of thermodynamics, concepts of internal energy and enthalpy, heat capacity, heat capacities at constant volume and pressure and their relationship.
15.9.2025 TO 17.9.2025	8th	Calculation of w, q, dU and dH for the expansion of ideal gases under isothermal and adiabatic conditions for reversible process. Temperature dependence of enthalpy, Bond energies and applications of bond energies, Carnot cycle and its efficiency, Carnot's theorem, class test
22.9.2025 TO 24.9.2025	9th	**Unit-III, Alkenes ,** Structure and bonding in akenes, Methods of preparation– 1. dehydration of alcohols (with mechanism), Regioselectivity in dehydration:
29.9.2025 TO 01.10.2025	10th	Saytzeff's rule and Hoffmann rule 2. dehydrohalogenation of alkyl halides. Physical properties and relative stabilities of alkenes, Chemical Reactions:
06.10.2025 TO 8.10.2025	11th	Hydrogenation (without mechanism), electrophilic addition reactions with examples (with mechanism), Markownikoff's rule, oxymercuration-demercuration,
13.10.2025 TO 15.10.2025	12th	Hydroboration oxidation, ozonolysis, hydration, hydroxylation and oxidation with $KMnO_4$,m **Arenes&Aromaticity**,m Aromaticity: Huckel's rule,
27.10.2025 TO 29.10.2025	13th	Concept of Aromatic, non-aromatic and antiaromatic compounds, Applications of Huckel's rule in Aromatic ions and compounds.
3.10.2025 TO 5.11.2025	14th	Structure of Benzene, Aromatic electrophilic substitution- general pattern of the mechanism, Mechanism of nitration, sulphonation,
10.11.2025 TO 12.11.2025	15th	Friedel-Crafts reaction, Activating and deactivating substituents and orientation.
17.11.2025 TO 19.11.2025	16th	**Alkyl Halides,** Methods of preparation- from alkenes and alcohols, physical properties, nucleophilic substitution reactions of alkyl halides,
24.11.2025 TO 26.11.2025	17th	SN_1 and SN_2 reactions (mechanism) with energy profile diagrams. Concept of racemisation, inversion and retention

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Name of the Assistant/ Associate Professor : Dr. Som Sharma
Class and Section: BSc in Physical Science, 3rd sem
Subject : Skill Chemistry

Date	Week	Topic
28.7.2025 TO 29.7.2025	1st	**UNIT-I, Cosmetics**- Definition, History, Classification,
04.8.2025 TO 5.8.2025	2nd	Ingredients, Nomenclature, Regulations.
11.8.2025 TO 12.8.2025	3rd	**Face Preparation:** Structure of skin, Face powder
18.8.2025 TO 19.8.2025	4th	Compact powder, Talcum powder
25.8.2025 TO 26.8.2025	5th	**Skin Preparation:** Face cream, vanishing cream, Tooth paste
31.8.2025 TO 01.9.2025	6th	Cold cream, suntan cream, lather shaving cream., Tooth powder, class test
9.9.2025 TO 11.9.2025	7th	**UNIT II, Hair preparation:** Structure of hair, classification of hair, Hair dye- classification – temporary, semipermanent,
15.9.2025 TO 16.9.2025	8th	Permanent, formulation, hair sprays, Assignment
22.9.2025 TO 23.9.2025	9th	Shampoo- types of shampoo, conditioners
29.9.2025 TO 30.09.2025	10th	**Colored preparation:** Nail preparation
06.10.2025 TO 7.10.2025	11th	Structure of nail, Nail lacquers;
13.10.2025 TO 14.10.2025	12th	Nail polish remover Lipsticks, class test
27.10.2025 TO 28.10.2025	13th	**Personal hygiene products**: Antiperspirants and deodorants
3.10.2025 TO 4.11.2025	14th	Oral hygiene products, flavours and essential oils
10.11.2025 TO 11.11.2025	15th	**UNIT III (Practical),** Preparation of the following, Talcum powder., Shampoo.
17.11.2025 TO 18.11.2025	16th	, Preparation, Face cream., Nail polish and nail polish remover., Hand wash
24.11.2025 TO 25.11.2025	17th	Preparation , Hand sanitizer, Body lotion, Soap

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Name of the Assistant/ Associate Professor : Dr Som Sharma.
Class and Section: BCOM 3RD SEM
Subject : MDC Chemistry

Date	Week	Topic
24.7.2025 TO 26.7.2025	1st	**UNIT-I, Pollution and their types:** Plastic and polyethene pollution.
31.7.2025 TO 2.8.2025	2nd	Pollution sources, Recycling of plastic
7.8.2025 TO 9.8.2025	3rd	Greenhouse effect, ozone depletion.
14.8.2025 TO 16.8.2025	4th	**Energy:** Energy sources, renewable and non-renewable sources.
21.8.2025 TO 23.8.2025	5th	cells and batteries, fuel cell, solar cell, polymer cell.
28.8.2025 TO 30.8.2025	6th	**Water:** Sources of drinking water and uses, assignment
4.9.2025 TO 6.9.2025	7th	Water conservation, Permissible TDS,
11.9.2025 TO 13.9.2025	8th	Techniques of purification of water, , R.O.
18.9.2025 TO 20.9.2025	9th	Water purification process (Osmosis and Reverse Osmosis).
25.9.2025 TO 27.9.2025	10th	**Pesticides and Herbicides:** General introduction and definition,
02.10.2025 TO 4.10.2025	11th	Biological control and chemical control:
9.10.2025 TO 11.10.2025	12th	Natural and synthetic pesticides,
16.10.2025 TO 18.10.2025	13th	Benefits and adverse effects of DDT,
30.10.2025 TO 1.11.2025	14th	BHC (without Structure) malathion.. class test
6.11.2025 TO 8.11.2025	15th	**UNIT III (Practical)** To check the TDS of different samples of water. 1. Purify the given sample of water using different purification techniques.
13.11.2025 TO 15.11.2025	16th	2. Identify the pH of different samples of food items. 4. Neutralize the given samples of base using acids
20.11.2025 TO 22.11.2025	17th	Revision, Class test

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Kusum
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Name of the Assistant Professor : Dr Som Sharma.
Class and Section: BSc Non Medical, 5th sem
Subject : Chemistry

Date	Week	Topic
24.7.2025 TO 26.7.2025	1st	UNIT-I, NMR Spectroscopy, basic information
31.7.2025 TO 2.8.2025	2nd	Principle of nuclear magnetic resonance, the PMR spectrum,number of signals
7.8.2025 TO 9.8.2025	3rd	Peak areas, equivalent and nonequivalent protons positions of signals and chemical shift,shielding and deshielding of protons
14.8.2025 TO 16.8.2025	4th	Proton counting,splitting of signals and coupling constants, magnetic equivalence of protons.
21.8.2025 TO 23.8.2025	5th	UNIT-II – Discussion of PMR spectra of the molecules:
28.8.2025 TO 30.8.2025	6th	Ethyl bromide, n-propyl bromide, isopropyl bromide
4.9.2025 TO 6.9.2025	7th	1-dibromoethane, ethanol, acetaldehyde, ethyl acetate, toluene, benzaldehyde and acetophenone.
11.9.2025 TO 13.9.2025	8th	UNIT- III, 1-dibromoethane, ethanol, acetaldehyde
18.9.2025 TO 20.9.2025	9th	Ethyl acetate, toluene, benzaldehyde and acetophenone.
25.9.2025 TO 27.9.2025	10th	Arbohydrates Classification and nomenclature of Monosaccharides
02.10.2025 TO 4.10.2025	11th	Mechanism of osazone formation, interconversion of glucose and fructose, chain lengthening and chain shortening of aldoses, class test
9.10.2025 TO 11.10.2025	12th	Configuration of monosaccharides. Erythro and threo diastereomers. Conversion of glucose into mannose. Formation of glycosides
16.10.2025 TO 18.10.2025	13th	Determination of ring size of glucose and fructose. Open chain and cyclic structure of D(+)-glucose & D(-) fructose
30.10.2025 TO 1.11.2025	14th	Spectroscopy of Introduction: Electromagnetic radiation, regions of spectrum, basic features spectroscopy, statement of Born-oppenheimer approximation, Degrees of freedom..
6.11.2025 TO 8.11.2025	15th	Rotational Spectrum.,Selection rules, Energy levels of rigid rotator (semi-classical principles), rotational spectra of diatomic molecules , spectral intensity distribution using population distribution (Maxwell-
13.11.2025 TO 15.11.2025	16th	Vibrational spectrum, Selection rules, Energy levels of simple harmonic oscillator, pure vibrational spectrum of diatomic molecules, determination of force constant and qualitative relation of force
20.11.2025 TO 22.11.2025	17th	Raman Spectrum, Concept of polarizibility, pure rotational and pure vibrational Raman spectra of diatomic molecules,

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