**Name of Assistant Professor: Seema kashyap**

**Class and section: B.Sc -II N.M & Med. (Sem- 3rd)**

**Major Chemistry -III Lesson Plan: (From Aug 2025 - Nov 2025)**

# Lesson Plan (Aug – Nov)

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| **Week** | **Unit / Topic** | **Subtopics / Activities** |
| Aug 1st week | Unit I: s- and p-Block Elements | Hydrides, oxides, halides, hydroxides of s-block (prep excluded); Diborane & Borazine; Catenation, carbides, fluorocarbons, silicates |
| Aug 2nd week | Unit I (contd.) | Oxides of N, P, white & red phosphorus, oxoacids; Chemistry of xenon (oxides, fluorides, oxyfluorides) |
| Aug 3rd Week | Unit II: Electrochemistry-I | Electrolytic conduction, molar conductance, equivalent conductance, Kohlrausch’s law, weak electrolyte conductance, numerical problems |
| Aug 4th Week | Electrochemistry-II | Reversible & irreversible cells, thermodynamic quantities (ΔG, ΔH, K), types of electrodes, |
| Sept 1ST Week | Electrochemistry-II | Nernst equation, EMF measurements, titrations using glass electrode |
| Sept 2nd Week | Unit III: Alkynes | Nomenclature, structure, methods of formation (acetylides, dehydrohalogenation, |
| Sept 3rd Week | Unit III: Alkynes | Kolbe’s electrolysis), chemical reactions, mechanism of electrophilic & nucleophilic addition, ozonolysis, acidity |
| Sept 4th week | Unit IV: Stereochemistry of Organic Compounds | Isomerism: structural & stereoisomerism; symmetry elements; enantiomers, |
| Oct 1st Week | Unit IV: Stereochemistry of Organic Compounds | optical activity, diastereomers, threo/erythro, meso compounds; absolute/relative configuration, |
| Oct 2nd Week | Unit IV: Stereochemistry of Organic Compounds | R/S system, E/Z system; conformational analysis of ethane, butane, cyclohexane |
| Oct 3rd Week | Unit IV: Benzene & Derivatives | Nomenclature, Huckel’s rule, electrophilic substitution, mechanism of nitration, halogenation, sulphonation |
| Oct 4th Week | Unit IV: Benzene & Derivatives | Friedel–Crafts; orientation effects, activating/deactivating substituents; energy profile diagrams |
| Nov 1st Week | Alkyl & Aryl Halides | Nomenclature, methods of formation (alkenes, alcohols), |
| Nov 2nd Week | Alkyl & Aryl Halides | SN1 & SN2 with energy profiles, halogenation |
| Nov 3rd Week | Alkyl & Aryl Halides | , Sandmeyer, nucleophilic substitution & elimination reactions, reactivity comparison |
| Nov 4th Week | Revision & Tutorials | Doubt clearing, revision of Units I–IV, practice numerical problems, sample viva/practical discussions |

## Practical Schedule (Parallel to Theory)

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| **Experiment** | **Week** |
| **preparation of Cuprous chloride,** | **2** |
| **preparation of tetraammine Cu²⁺** | **3** |
| **Buffer solutions (pH 5 & 9)** | **4** |
| **Enthalpy of neutralisation (strong acid vs strong Base )** | **5** |
| **Enthalpy of neutralisation (strong acid vs weak Base )** | **6** |
| **Enthalpy of neutralisation weak acid vs weak base),** | **7** |
| **CST determination; solubility of benzoic acid** | **7** |
| **Gravimetric Analysis Ni²⁺** | **10** |
| **Gravimetric Analysis Al³⁺** | **13** |
| **Colorimetry (Beer-Lambert Law, KMnO₄/K₂Cr₂O₇ solutions)** | **15–16** |