

## Lesson Plan

**Name of Assistant/Associate Professor: Arun Soni**

**Class and section: B.Sc I**

**Chemistry Lesson Plan: Week (From FEB 2023 to May 2023)**

<b>Chapter 1 Hydrogen –Bonding &amp;Vander Waal’s Forces</b>	
<ul style="list-style-type: none"> <li>○ Hydrogen Bonding –Definition</li> <li>○ Types of Hydrogen Bonding</li> <li>○ Effect of Hydrogen Bonding on Properties of Substance</li> </ul>	Feb , Week3rd
<ul style="list-style-type: none"> <li>○ Applications of Hydrogen Bonding</li> <li>○ Brief discussion of various types of Vander Waal’s forces</li> </ul>	Feb , Week 3rd
<ul style="list-style-type: none"> <li>○ Introduction of metallic bond</li> <li>○ Qualitative Idea of Valence Bond theory</li> <li>○ Band theory of metallic bond</li> </ul>	Feb , Week 4 <sup>th</sup>
<ul style="list-style-type: none"> <li>○ Semiconductors-Introduction</li> <li>○ Types &amp; Applications</li> </ul>	Feb , Week 4 <sup>th</sup>
<b>Chapter 2: S-Block Elements</b>	
<ul style="list-style-type: none"> <li>○ Comparative study of the element including diagonal Relationship</li> <li>○ Anomalous Behaviour of Li &amp; Bi compared to other Elements in Same Group</li> <li>○ Salient feature of hydrides, Oxides</li> </ul>	March, Week 1 <sup>st</sup>
<ul style="list-style-type: none"> <li>○ Salient Feature of Halide And Hydroxide</li> <li>○ Behaviour of Solution in liquid NH<sub>3</sub></li> </ul>	March, Week 1 <sup>st</sup>
<ul style="list-style-type: none"> <li>○ Solvation</li> <li>○ Complexation tendencies including their function in Bio system</li> </ul>	March , Week 2 <sup>nd</sup>
<b>Chapter 3: Chemistry of Noble Gases</b>	
<ul style="list-style-type: none"> <li>○ Chemical properties of the noble gases</li> <li>○ Emphasis on their low chemical properties</li> </ul>	March , Week 2 <sup>nd</sup>
<ul style="list-style-type: none"> <li>○ Chemistry of xenon</li> <li>○ Structure &amp;bonding of fluoride ,oxides &amp; oxyfluorides of xenon</li> </ul>	March , Week 2 <sup>nd</sup>
<b>Chapter 4: p-Block Elements</b>	
<ul style="list-style-type: none"> <li>○ Electronic Configuration</li> <li>○ Atomic size &amp; Ionic size</li> <li>○ Metallic Character</li> <li>○ Melting Point</li> </ul>	March, Week 3 <sup>rd</sup>
<ul style="list-style-type: none"> <li>○ Ionization Energy</li> <li>○ Electron Affinity</li> <li>○ Electronegativity</li> </ul>	March, Week 3 <sup>rd</sup>
<ul style="list-style-type: none"> <li>○ Inert Pair Effect</li> <li>○ Diagonal Relationship</li> </ul>	Marchl, Week 4 <sup>th</sup>
<ul style="list-style-type: none"> <li>○ <b>Test of Chapter 1 And 2</b></li> </ul>	
<ul style="list-style-type: none"> <li>○ Diborane</li> <li>○ Properties &amp; Structure of Diborane</li> <li>○ Borazine &amp; its structure</li> <li>○ Chemical properties of Borazine</li> </ul>	April,Week Ist
<ul style="list-style-type: none"> <li>○ Trihalides of Boron</li> </ul>	April,Week 2 <sup>nd</sup>

<ul style="list-style-type: none"> <li>○ Relative Strength of Trihalides of Boron as Lewis Acid</li> <li>○ Structure of Aluminium (III) Chloride</li> </ul>	
<ul style="list-style-type: none"> <li>○ Catenation</li> <li>○ Carbides</li> <li>○ Fluoro Carbons</li> </ul>	April, Week 2 <sup>nd</sup>
<ul style="list-style-type: none"> <li>○ Silicates</li> <li>○ Types and Structure of Silicates</li> </ul>	April, Week 3 <sup>rd</sup>
<ul style="list-style-type: none"> <li>○ Silicones –General methods of preparations</li> <li>○ Properties &amp; its uses</li> </ul>	April, Week 3 <sup>rd</sup>
<ul style="list-style-type: none"> <li>○ Oxides-structure of oxides of N &amp; P</li> <li>○ Oxoacids –Structure &amp; relative acid Strength of Oxoacids of N &amp; P</li> </ul>	April, Week 4 <sup>th</sup>
<ul style="list-style-type: none"> <li>○ Structure of white ,yellow &amp; Red phosphorous</li> </ul>	
<ul style="list-style-type: none"> <li>○ Oxoacids of Sulphur</li> <li>○ Structure &amp; Acid strength</li> </ul>	April Week 4 <sup>th</sup>
<ul style="list-style-type: none"> <li>○ H<sub>2</sub>O<sub>2</sub></li> <li>○ Properties and Uses</li> </ul>	May, Week 1 <sup>st</sup>
<ul style="list-style-type: none"> <li>○ Basic Properties of Halogens</li> </ul>	May, Week 1 <sup>st</sup>
<ul style="list-style-type: none"> <li>○ Interhalogen Compound</li> <li>○ Their Types and Structure</li> </ul>	May , Week 2 <sup>nd</sup>
<ul style="list-style-type: none"> <li>○ Hydra and Oxy Acids of Chlorine</li> <li>○ Structure and Acidic Strength</li> </ul>	May, Week 2 <sup>nd</sup>
<ul style="list-style-type: none"> <li>○ Cationic Nature of Iodine</li> </ul>	May, Week 3 <sup>rd</sup>
<ul style="list-style-type: none"> <li>○ Problems From S-block and P-block Elements</li> </ul>	May , Week 3 <sup>rd</sup>
<ul style="list-style-type: none"> <li>○ Revision</li> </ul>	
<ul style="list-style-type: none"> <li>○</li> </ul>	

## Lesson Plan

**Name of Assistant/Associate Professor: SEEMA KASHYAP**

**Class and section: B.Sc I Med & Non Med.**

**Chemistry Lesson Plan: Week(From FEB 2023 to May 2023)**

<b>Chapter 1 KINETICS 1</b>	
○ Rate of reaction, rate equation	Feb , Week 3 <sup>rd</sup>
○ Factor effecting the rate of reaction, order of reaction	Feb , Week 3 <sup>rd</sup>
○ Integrated rate equation of zero and first order reaction	Feb , Week 4 <sup>th</sup>
○ Integrated rate equation of second and third order reaction	Feb , Week 4 <sup>th</sup>
○ Method of determination of order of reaction	March, Week 1 <sup>st</sup>
<b>Chapter 2 Kinetics</b>	
○ Arrhenius equation and effect of temperature	March, Week 1 <sup>st</sup>
○ Simple collision theory of reaction rate	March , Week 2 <sup>nd</sup>
○ Bimolecular collision theory of reaction rate	
○ Transition state theory of bimolecular reaction	March , Week 2 <sup>nd</sup>
○ Problem of chapter of 1 & 2	March , Week 2 <sup>nd</sup>
○ Assignment I	
○ Test of chapter 1	March, Week 3 <sup>rd</sup>
<b>Chapter 3 Electrochemistry 1</b>	
○ Electrolytic conduction and factor effecting	March, Week 3 <sup>rd</sup>
Specific conductance, equivalent conductance, molar conductance	March, Week 4 <sup>th</sup>
○ Relation between different conductance	April, Week 1 <sup>st</sup>
○ Effect of concentration on various conductance	April, Week 2 <sup>nd</sup>
○ Arrhenius theory of ionization, Ostwald dilution law	April, Week 2 <sup>nd</sup>
9	April, Week 3 <sup>rd</sup>
○ Debye-Huckel-Onsager equation, transport number	
○ Definition and determination by Hittorff's method	April, Week 3 <sup>rd</sup>
○ Problems From Chapter 3	April, Week 4 <sup>th</sup>
<b>CHAPTER-4 Electrochemistry 2</b>	
○ Kohlrausch law and its numerical	April Week 4 <sup>th</sup>
○ Calculation of molar ionic conductance and effect of viscosity, temperature	May, Week 1 <sup>st</sup>
○ And pressure on it	
○ Application of Kohlrausch law in calculation of weak electrochemistry at infinite dilution	May, Week 1 <sup>st</sup>
○ Application of conductivity measurement	
○ Determination of degree of dissociation	May , Week 2 <sup>nd</sup>
○ Determination of pH, $K_a$ and $pK_a$	May, Week 2 <sup>nd</sup>
○ Determination of solubility product and numerical based on it	May, Week 2 <sup>nd</sup>
○ Conductometric titration	May, Week 3 <sup>rd</sup>

○ Henderson-Hasselbalch equation	May, Week 3 <sup>rd</sup>
○ Buffer solution and buffer action ○ Mechanism of buffer action	May , Week 3 <sup>rd</sup>

## LESSON PLAN

Name of Assistant/ Associate Professor : SEEMA KASHYAP

Class and section : B.Sc I Med. & Non Med.

Chemistry Lesson Plan: 18 Week From FEB 2023 to May 2023)

<b>Chapter 1: Alkenes</b>	
<ul style="list-style-type: none"> <li>• 1.1 Nomenclature of alkenes</li> <li>• 1.2 mechanisms of dehydration of alcohol</li> </ul>	Feb , Week 3 <sup>rd</sup>
<ul style="list-style-type: none"> <li>• 1.3 mechanisms of dehydrohalogenation of alkyl halides</li> <li>• 1.4 saytzeff rule, Hoffmann elimination</li> </ul>	Feb , Week 3 <sup>rd</sup>
<ul style="list-style-type: none"> <li>• 1.5 physical properties and relative stabilities of alkenes</li> <li>• 1.6 chemical reactions of alkenes – mechanisms involved in hydrogenation</li> </ul>	Feb , Week 4 <sup>th</sup>
<ul style="list-style-type: none"> <li>• 1.7 electrophilic and free radical addition</li> </ul>	Feb , Week 4 <sup>th</sup>
	March, Week 1 <sup>st</sup>
<ul style="list-style-type: none"> <li>• 1.8 Markownikoff's rule</li> <li>• 1.9 hydroboration – oxidation</li> </ul>	
<ul style="list-style-type: none"> <li>• 1.10 oxymercuration reduction</li> <li>• 1.11 ozonolysis</li> </ul>	March, Week 1 <sup>st</sup>
<ul style="list-style-type: none"> <li>• 1.12 hydration</li> <li>• 1.13 hydroxylation and oxidation with <math>\text{KMnO}_4</math></li> </ul>	March , Week 2 <sup>nd</sup>
<b>Chapter 2: Arenes and Aromaticity</b>	
<ul style="list-style-type: none"> <li>• 2.1 Nomenclature of benzene derivatives : Aromatic nucleus and side chain</li> </ul>	March , Week 2 <sup>nd</sup>
<ul style="list-style-type: none"> <li>• 2.2 Aromaticity: Huckel rule</li> </ul>	March , Week 2 <sup>nd</sup>
<ul style="list-style-type: none"> <li>• 2.3 aromatic ions, annulenes upto 10 carbon atoms</li> <li>• 2.4 aromatic, anti- aromatic and non – aromatic compounds</li> </ul>	March, Week 3 <sup>rd</sup>
<ul style="list-style-type: none"> <li>• 2.5 aromatic electrophilic substitution</li> </ul>	March, Week 3 <sup>rd</sup>
<ul style="list-style-type: none"> <li>• 2.6 mechanism of nitration. Halogenation and sulphonation</li> </ul>	March, Week 3 <sup>rd</sup>
<ul style="list-style-type: none"> <li>• 2.7 Friedel – craft reaction</li> <li>• 2.8 energy profile diagram</li> </ul>	March, Week 4 <sup>th</sup>
<ul style="list-style-type: none"> <li>• 2.9 activating, deactivating substituents and orientations</li> </ul>	April, Week 1 <sup>st</sup>
<ul style="list-style-type: none"> <li>• problems of chapter 1 &amp; 2</li> </ul>	April, Week 2 <sup>nd</sup>
<ul style="list-style-type: none"> <li>• test</li> </ul>	April, Week 2 <sup>nd</sup>
<b>Chapter 3: Dienes and Alkynes</b>	
<ul style="list-style-type: none"> <li>• 3.1 Nomenclature and classification of dienes</li> <li>• 3.2 Structure of butadiene</li> </ul>	April, Week 3 <sup>rd</sup>
<ul style="list-style-type: none"> <li>• 3.3 chemical reactions – 1,2 &amp; 1,4 additions</li> <li>• 3.4 Diels – alder reaction</li> </ul>	April, Week 3 <sup>rd</sup>
<ul style="list-style-type: none"> <li>• 3.5 nomenclature, structure and bonding in alkynes</li> <li>• 3.6 methods of formation &amp; chemical reaction of alkynes, acidity of alkynes</li> </ul>	April, Week 4 <sup>th</sup>
<ul style="list-style-type: none"> <li>• 3.7 mechanism of electrophilic and nucleophilic addition reactions</li> <li>• 3.8 hydroboration – oxidation of alkynes</li> </ul>	May, Week 1 <sup>st</sup>
<ul style="list-style-type: none"> <li>• problem of chapter 3</li> </ul>	May, Week 1 <sup>st</sup>
Chapter 4: Alkyl and aryl halides	
<ul style="list-style-type: none"> <li>• 4.1 Nomenclature and classes of alkyl halides</li> <li>• 4.2 methods of formation, chemical reactions</li> </ul>	May , Week 2 <sup>nd</sup>
<ul style="list-style-type: none"> <li>• 4.3 Mechanisms and stereochemistry of nucleophilic substitution reactions of alkyl halides</li> <li>• 4.4 <math>\text{S}_\text{N}1</math> &amp; <math>\text{S}_\text{N}2</math> reactions with energy profile diagrams</li> </ul>	May, Week 2 <sup>nd</sup>
<ul style="list-style-type: none"> <li>• 4.5 methods of formation &amp; chemical reactions of aryl halides</li> </ul>	May, Week 2 <sup>nd</sup>

• 4.6 addition elimination and the elimination addition mechanisms of nucleophilic aromatic substitutions reactions	
• 4.7 relative reactivities of alkyl halides vs allyl, vinyl and aryl halides	May, Week 3 <sup>rd</sup>