

Lesson Plan

Name of Assistant Professor: Abhishek Sharma

Class: B.Sc III N.M Physical Chemistry

Chemistry Lesson Plan: 16 Week (From February 2024 to May 2024)

Week 1: 31/01/2024 to 03/02/2024

Chapter 1: Introduction to statistical Mechanics

- 1.1 Need for Statistical Thermodynamics
- 1.2 Thermodynamics Probability
- 1.3 Maxwell Boltzmann Distribution Statistics
- 1.4 Born Oppenheimer Approximation

Week 2: 05/02/2024 to 10/02/2024

- 1.5 Partition Function
- 1.6 Significance of Partition Function
- 1.7 Factorization of Partition Function
- 1.8 Translational Partition Function

Week 3: 12/02/2024 to 17/02/2024

- 1.9 Vibrational Partition Function
- 1.10 Rotational Partition Function

Chapter 2: Photochemistry

- 2.1 Interaction of radiation with matter
- 2.2 Difference between Thermal and Photochemical Processes

Week 4: 19/02/2024 to 24/02/2024

- 2.3 Laws Governing Absorption of Light
- 2.4 Some other terms commonly used in Spectroscopy
- 2.5 Laws Governing Photochemical Reactions
- 2.6 Quantum Yield/Quantum Efficiency

Week 5: 26/02/2024 to 02/03/2024

- 2.7 Fluorescence and Phosphorescence in terms of Excitation of Electrons (Jabolonski Diagram)
- 2.8 Main Points of Difference Between Phosphorescence and Fluorescence
- 2.9 Photosensitization

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Week 6: 04/03/2024 to 09/03/2024

- 2.10 Quenching of Fluorescence: Stern Volmer Equation
- 2.11 Photoinhibitors
- 2.12 Photostationary State

Week 7: 11/03/2024 to 16/03/2024

- Test of Chapter 2 (Photochemistry)
- Assignment I

Chapter 3: Solutions

- 3.1 Mode of Expressing the Concentration of a Solution
- 3.2 Chemical Potential
- 3.3 Fugacity, Activity and Activity coefficient

Week 8: 18/03/2024 to 22/03/2024

- 3.4 Raoult's Law
- 3.5 Ideal and Non Ideal Solutions
- 3.6 Thermodynamics Properties of Ideal Solution

Week 9: 28/03/2024 to 30/03/2024

- 3.7 Vapour Pressure of Ideal Solution
- 3.8 Deviation from Ideal Behaviour
- 3.9 Azeotropes

Week 10: 01/04/2024 to 06/04/2024

- 3.10 Colligative Properties
- 3.11 Lowering of Vapour Pressure
- 3.12 Thermodynamics Derivation of Relative Lowering of Vapour Pressure
- 3.13 Elevation in the Boiling Point

Week 11: 08/04/2024 to 13/04/2024

- 3.18 Thermodynamics Derivation of osmotic Pressure
- 3.19 Abnormal Molecular Mass
- 3.20 Van't Hoff Factor
- 3.21 Application in calculating molar masses of normal, dissociated and associated solutes in solution

Week 12: 15/04/2024 to 20/04/2024

- Test of Chapter 3 (Solution)
- Assignment II

Chapter 4: Phase Equilibrium

- 4.1 Explanation of Terms involved in Phase Rule
- 4.2 Criteria for Phase Equilibrium for Multi-Component System
- 4.3 Derivation of Gibb's Phase Rule

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Week 13: 22/04/2024 to 27/04/2024

- 4.4 Phase Diagrams
- 4.5 Application of Phase rule to one component system
- 4.6 Water System
- 4.7 Carbon Dioxide System

Week 14: 29/04/2024 to 04/05/2024

- 4.8 Phase rule Diagrams for Two Components Systems
- 4.9 Types of two Components involving Solid-Liquid Equilibria
- 4.10 General Discussion of the Phase Diagrams for Two Component system

Week 15 & 16: 06/05/2024 to 15/05/2024

- 4.11 Experimental Determination of the Phase Diagrams of Two Component System
- 4.12 Study of Two Component System (Pb-Ag System)
- 4.13 Pattinson's Process for Desilverisation of Lead

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Lesson Plan

Name of Assistant Professor: Abhishek Sharma

Class: B.Sc. III N.M Organic Chemistry

Chemistry Lesson Plan: 16 Week (Feb 2024 to May 2024)

Week 1: 31/01/2024 to 03/02/2024 Organic synthesis via enolates <ul style="list-style-type: none">○ Acidity of hydrogen, alkylation of diethylmalonate & Ethyl acetoacetate
Week 2: 05/02/2024 to 10/02/2024 <ul style="list-style-type: none">○ Synthesis of Ethylacetoacetate, Claisen condensation Keto-enol tautomerism of ethyl acetoacetate
Week 3: 12/02/2024 to 17/02/2024 Heterocyclic compounds <ul style="list-style-type: none">○ M.O.P & Chemical Reaction with mechanism of electrophilic substitution
Week 4: 19/02/2024 to 24/02/2024 <ul style="list-style-type: none">○ Mech. Of Nucleophilic Substitution Reaction in Pyridine derivatives○ Comparison of basicity of pyridine piperidine & pyrrole
Week 5: 26/02/2024 to 02/03/2024 <ul style="list-style-type: none">○ Introduction of condensed 5-6 membered heterocycles○ Preparation & reaction of indole
Week 6: 04/03/2024 to 09/03/2024 <ul style="list-style-type: none">○ Reactions of quinolone & isoquinoline
Week 7: 11/03/2024 to 16/03/2024 <ul style="list-style-type: none">○ Fischer Indole synthesis & Skrap synthesis○ Bischler napieralski synthesis, Mech. of Electrophilic substitution of indole
Week 8: 18/03/2024 to 22/03/2024 <ul style="list-style-type: none">○ Assignment I○ Mech. Of electrophilic substitution Reaction. of Quinoline & Isoquinoline
Week 9: 28/03/2024 to 30/03/2024 Amino acid Peptide and Protein <ul style="list-style-type: none">○ Classification, structure & stereochemistry of amino acids, Acid-base behavior○ Isoelectric point & electrophoresis, Preparation & reaction of Amino acids
Week 10: 01/04/2024 to 06/04/2024 <ul style="list-style-type: none">○ Structure & Nomenclature of peptides & proteins,○ Peptide structure determination, End group analysis, selective Hydrolysis of peptides

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<p>Week 11: 08/04/2024 to 13/04/2024</p> <ul style="list-style-type: none"> ○ Classical peptide synthesis, Solid phase peptide synthesis ○ Structure of peptides & proteins, levels of proteins structure
<p>Week 12: 15/04/2024 to 20/04/2024</p> <ul style="list-style-type: none"> ○ Test of Amino Acid, Peptides and proteins ○ Assignment II <p>Synthetic Polymer</p> <ul style="list-style-type: none"> ○ Addition or Chain growth polymer ○ Free radical vinyl polymerization
<p>Week 13: 22/04/2024 to 27/04/2024</p> <ul style="list-style-type: none"> ○ Ionic vinyl polymerization ○ Ziegler-Natta Polymerization
<p>Week 14: 29/04/2024 to 04/05/2024</p> <ul style="list-style-type: none"> ○ Vinyl Polymers ○ Condensation and step growth polymerization
<p>Week 15 & 16: 06/05/2024 to 15/05/2024</p> <ul style="list-style-type: none"> ○ Polyesters, Polyamides, Phenol-formaldehyde resins ○ Natural and synthetic polymers

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Lesson Plan

Name of Assistant Professor: Abhishek Sharma

Class: B. Sc II Organic Chemistry

Chemistry lesson Plan: 16 weeks (From Feb 2024 to May 2024)

Week 1: 31/01/2024 to 04/02/2024 Chapter 1: Infrared Absorption Spectroscopy <ul style="list-style-type: none">○ 1.1 Molecular Vibration○ 1.2 Hooke's Law○ 1.3 Selection Rule
Week 2: 05/02/2024 to 10/02/2024 <ul style="list-style-type: none">○ 1.4 Intensity and Position of IR Bands○ 1.5 Measurement of IR Spectrum○ 1.6 Fingerprint Region○ 1.7 Characteristics Absorption of Various Functional Groups
Week 3: 12/02/2024 to 17/02/2024 <ul style="list-style-type: none">○ 1.8 Interpretation of IR Spectra○ 1.9 Application of IR Spectroscopy
Week 4: 19/02/2024 to 24/02/2024 Chapter 2: Amines <ul style="list-style-type: none">○ 2.1 Structure of Amines○ 2.2 Nomenclature of Amines○ 2.3 Separation of Primary, Secondary and Tertiary Amines○ 2.4 Physical Properties
Week 5: 26/02/2024 to 02/03/2024 <ul style="list-style-type: none">○ 2.5 Basic Character○ 2.6 Factor effecting the Basic Character○ 2.7 Preparation of Alkyl Amine○ 2.8 Preparation of Aryl Amine
Week 6: 04/03/2024 to 09/03/2024 <ul style="list-style-type: none">○ 2.9 Gabriel Phthalimide Reaction○ 2.10 Hofmann Bromamide Reaction
Week 7: 11/03/2024 to 16/03/2024 <ul style="list-style-type: none">○ 2.11 Electrophilic Substitution of Aryl Amine○ 2.12 Reaction of Amine with Nitrous Acid○ Test from Chapter 1
Week 8: 18/03/2024 to 22/03/2024 Chapter 3: Diazonium Salts <ul style="list-style-type: none">○ 3.1 Mechanism of Diazotization○ 3.2 Structure of Benzene Diazonium Chloride○ 3.3 Various Reaction of Diazonium Salts

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Week 9: 28/03/2024 to 30/03/2024

- 3.4 Reduction of Diazonium Salts to Hydrazine
- 3.5 Coupling Reactions
- 3.6 Synthesis Application of Diazonium Salts

Week 10: 01/04/2024 to 06/04/2024

Chapter 4: Nitro Compounds

- 4.1 Preparation of Nitro Alkane
- 4.2 Preparation of Nitro Arenes
- 4.3 Chemical Reactions
- 4.4 Mechanism of Electrophilic Substitution Reactions
- 4.5 Reduction in Acidic Neutral and Alkaline Medium

Week 11: 08/04/2024 to 13/04/2024

Chapter 5: Aldehyde and Ketone

- 5.1 Nomenclature of Carbonyl Group
- 5.2 Structure of Carbonyl Group
- 5.3 Synthesis of Aldehyde and Ketone

Week 12: 15/04/2024 to 20/04/2024

- 5.4 Synthesis of Aldehyde from Acid Chloride
- 5.5 Advantage of Control Oxidation of Alcohol
- 5.6 Physical Property
- 5.7 Comparison of Reactivity of Aldehyde and Ketone

Week 13: 22/04/2024 to 27/04/2024

- 5.8 Mechanism of Aldol Reaction
- 5.9 Mechanism of Perkin Reaction
- 5.10 Mechanism of Knoevenagel Reaction
- 5.11 Condensation with Ammonia and its Derivatives

Week 14: 29/04/2024 to 04/05/2024

- 5.12 Wittig Reaction
- 5.13 Mannich Reaction
- 5.14 Oxidation of Aldehyde
- 5.15 Baeyer Villiger Oxidation
- 5.16 Cannizzaro Reaction

Week 15 & 16: 06/05/2024 to 15/05/2024

- 5.17 Clennensen Reduction
- 5.18 Wolf Kishner Reduction
- 5.19 LiAlH_4 and NaBH_4 Reduction
- Assignment II
- Revision

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Lesson Plan

Name of Assistant Professor: Abhishek Sharma

Class: B.Sc I N.M

Chemistry Lesson Plan: 16 Week (From February 2024 to May 2024)

Week 1: 31/01/2024 to 04/02/2024 Chapter 1: Covalent Bond <ul style="list-style-type: none">○ Valence bond theory approach,
Week 2: 05/02/2024 to 10/02/2024 <ul style="list-style-type: none">○ Shapes of simple inorganic molecules and ions based on valence shell electron pair repulsion (VSEPR) theory
Week 3: 12/02/2024 to 17/02/2024 <ul style="list-style-type: none">○ Hybridization with suitable examples of linear, trigonal planar, square planar, tetrahedral, trigonal bipyramidal and octahedral arrangements
Week 4: 19/02/2024 to 24/02/2024 <ul style="list-style-type: none">○ Molecular orbital theory of homonuclear (N_2, O_2) and heteronuclear (CO and NO) diatomic molecules
Week 5: 26/02/2024 to 02/03/2024 <ul style="list-style-type: none">○ Dipole moment and percentage ionic character in covalent bond.
Week 6: 04/03/2024 to 09/03/2024 Chapter 2: Ionic Solids <ul style="list-style-type: none">○ Ionic structures ($NaCl$, $CsCl$, ZnS (Zinc blende), CaF_2)
Week 7: 11/03/2024 to 16/03/2024 <ul style="list-style-type: none">○ Size effects, radius ratio rule and its limitations○ Test of Chapter 1
Week 8: 18/03/2024 to 22/03/2024 <ul style="list-style-type: none">○ Concept of Lattice energy,○ Born- Haber cycle,○ Solvation energy and its relationship with solubility of Ionic solids
Week 9: 28/03/2024 to 30/03/2024 <ul style="list-style-type: none">○ Polarizing power and Polarisability of ions,○ Fajan's rule.○ Assignment - I
Week 10: 01/04/2024 to 06/04/2024 Chapter 3: Chemical Kinetics <ul style="list-style-type: none">○ Concept of reaction rates,○ Rate equation, factors influencing the rate of reaction,○ Order and molecularity of a reaction

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Week 11: 08/04/2024 to 13/04/2024

- Integrated rate expression for zero, first order Reaction
- Half-life period of a reaction,
- Arrhenius equation.

Week 12: 15/04/2024 to 20/04/2024

- Nernst distribution law – its thermodynamic derivation,
- Nernst distribution law after association of solute in one of the phases

Week 13: 22/04/2024 to 27/04/2024

- Nernst distribution law after dissociation of solute in one of the phases
- Determination of degree of hydrolysis and hydrolysis constant of aniline hydrochloride

Week 14: 29/04/2024 to 04/05/2024

- Hydrogen Bonding – Definition, types, effects of hydrogen bonding on properties of substances, application
- Brief discussion of various types of Van der Waals forces.

Week 15 & 16: 06/05/2024 to 15/05/2024

- Metallic bond – Qualitative idea of valence bond and Band theories of metallic bond (conductors, semiconductors, insulators).
- Semiconductors – Introduction, types, and applications.
- Assignment II
- Revision

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Lesson Plan

Name of Assistant Professor: Abhishek Sharma

Class: MDC (Introductory Chemistry-II)

Chemistry Lesson Plan: 16 Week (From February 2024 to May 2024)

Week 1: 31/01/2024 to 04/02/2024 Chapter 1: Renowned Indian Scientists <ul style="list-style-type: none">○ Brief Biography of Renowned Indian Scientists: Hargobind Khurana, Dr. P.C. Ray
Week 2: 05/02/2024 to 10/02/2024 <ul style="list-style-type: none">○ Brief Biography of Renowned Indian Scientists: Sir C.V. Raman, Dr. A.P.J. Abdul Kalam, C. N. R. Rao
Week 3: 12/02/2024 to 17/02/2024 <ul style="list-style-type: none">○ Brief Biography of Renowned Indian Scientists: Dr. Vikram Sara Bhai, Dr. Homi Jahangir Bhabha
Week 4: 19/02/2024 to 24/02/2024 <ul style="list-style-type: none">○ Brief Biography of Renowned Indian Scientists: Dr. J.C. Bose, Dr. S. N. Bose
Week 5: 26/02/2024 to 02/03/2024 Chapter 2: Metal and Non-Metals <ul style="list-style-type: none">○ Periodic table,○ Classification of elements
Week 6: 04/03/2024 to 09/03/2024 <ul style="list-style-type: none">○ Physical and Chemical aspects of metals and non-metals
Week 7: 11/03/2024 to 16/03/2024 <ul style="list-style-type: none">○ Ore and Minerals of Iron, Copper, Aluminum, alloys○ Test from Chapter 1
Week 8: 18/03/2024 to 22/03/2024 Chapter 3: Physical Properties of Matter <ul style="list-style-type: none">○ Classification of matter, properties, uses
Week 9: 28/03/2024 to 30/03/2024 <ul style="list-style-type: none">○ Ideal gas equation, real gas equation○ Assignment- I
Week 10: 01/04/2024 to 06/04/2024 <ul style="list-style-type: none">○ Some important compounds: baking soda, washing soda○ Test from Chapter -2
Week 11: 08/04/2024 to 13/04/2024 <ul style="list-style-type: none">○ Some important compounds: Plaster of Paris, gypsum, glass

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Week 12: 15/04/2024 to 20/04/2024 Chapter 4: Soil and fertilizers ○ Green revolution
Week 13: 22/04/2024 to 27/04/2024 ○ Soil: types of soil and their components for fertility ○ Test from Chapter - 3
Week 14: 29/04/2024 to 04/05/2024 ○ Grow condition, pH, irrigation, biofertilizers,
Week 15 & 16: 06/05/2024 to 15/05/2024 ○ Chemical fertilizers and their uses, ○ Acid rain ○ Assignment II ○ Revision

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LESSON PLAN

Name of Assistant Professor: Sahil

Class: B. Sc III Inorganic Chemistry

Chemistry lesson Plan: 16 weeks (From Feb 2024 to May 2024)

Week 1: 31/01/2024 to 03/02/2024 Chapter 1 Organometallic Chemistry 1.1 Definition 1.2 Nomenclature and classification of Organometallic compounds
Week 2: 05/02/2024 to 10/02/2024 1.3 Preparation, properties and bonding of alkyls of lithium 1.4 Preparation, properties and bonding of alkyls of Aluminium
Week 3: 12/02/2024 to 17/02/2024 1.5 Preparation, properties and bonding of alkyls of Mercury
Week 4: 19/02/2024 to 24/02/2024 1.6 Preparation, properties and bonding of alkyls of Sn 1.7 Nature of bonding in Metal Carbonyls
Week 5: 26/02/2024 to 02/03/2024 1.8 A brief account of metal Ethylenic complexes 1.9 Mononuclear Carbonyls Assignment I
Week 6: 04/03/2024 to 09/03/2024 Chapter 2 Acid & Bases, HSAB Concept 2.1 Arrhenius concept of Acid & Bases 2.2 Advantages & Limitations of Arrhenius concept
Week 7: 11/03/2024 to 16/03/2024 2.3 Bronsted Lowry concept of Acid and Bases 2.4 Lux – flood concept of Acid and Bases 2.5 Solvent system concept of Acid and Bases 2.6 Lewis system concept of Acid and Bases
Week 8: 18/03/2024 to 22/03/2024 2.7 Relative strength of Acid and Bases 2.8 Concept of Hard and soft Acids and Bases
Week 9: 28/03/2024 to 30/03/2024 Chapter 3 Bio Inorganic Chemistry 3.1 Essential and Trace elements in biological processes 3.2 Metalloporphyrin's with special reference to haemoglobin and myoglobin 3.3 Myoglobin and Haemoglobin functions 3.4 Carbon dioxide transport and Bohr effect

Week 10: 01/04/2024 to 06/04/2024

3.5 Biological role of alkali & alkalis earth metals Ions with special reference to Ca^{2+}

3.6 Nitrogen Fixation Metalloproteins

Week 11: 08/04/2024 to 13/04/2024

Silicones & Phosphazenes

4.1 Silicones as an example of Inorganic polymers

4.2 Silicones fluids & oils, silicones elastoma

Week 12: 15/04/2024 to 20/04/2024

4.3 Silicones Resins, Polysiloxane copolymers

Week 13: 22/04/2024 to 27/04/2024

4.4 Introduction to Phosphazene, method of preparation of phosphazenes

Week 14: 29/04/2024 to 04/05/2024

4.5 Structure and bonding in Phosphazenes

Week 15 & 16: 06/05/2024 to 15/05/2024

4.6 Bonding in Triphosphazenes

4.7 Uses of Phosphazenes

Assignment – II



Lesson Plan

Name of Assistant Professor: Sahil

Class: B. Sc II Physical Chemistry

Chemistry lesson Plan: 16 weeks (From Feb 2024 to May 2024)

Week 1: 31/01/2024 to 03/02/2024

Chapter 1: Thermodynamics II

- 1.1 Introduction –Need for second Law of thermodynamics and Statement
- 1.2 Carnot Cycle And its efficiency
- 1.3 Carnot Theorem

Week 2: 05/02/2024 to 10/02/2024

- 1.4 Thermodynamics scale of temperature
- 1.5 Entropy
- 1.6 Entropy Change in Reversible Processes
- 1.7 Entropy Change in irreversible Processes

Week 3: 12/02/2024 to 17/02/2024

- 1.8 Clausius inequality
- 1.9 Entropy change of universe
- 1.10 Entropy change for ideal gas with change in P,V & T and Entropy Change during Physical changes

Week 4: 19/02/2024 to 24/02/2024

- 1.11 Entropy Change on mixing of ideal gas
- 1.12 Physical Significance of Entropy
- 1.13 Measure of Disorder
- Assignment I

Week 5: 26/02/2024 to 02/03/2024

Chapter 2: Electrochemistry

- 2.1 What is Electrochemical cell or Galvanic cell
- 2.2 What is Electrolytic Cell
- 2.3 Representation of Electrochemical Cell
- 2.4 Electrode Potential

Week 6: 04/03/2024 to 09/03/2024

- 2.5 EMF of the Cell And its Measurement
- 2.6 Standard cell
- 2.7 Reversible and Irreversible Cell
- 2.8 Reversible electrodes

<p>Week 7: 11/03/2024 to 16/03/2024</p> <ul style="list-style-type: none"> ○ 2.9 Relationship between Chemical and Electrical Energy ○ 2.10 Calculation of Thermodynamics Quantity of the Cell reaction
<p>Week 8: 18/03/2024 to 22/03/2024</p> <ul style="list-style-type: none"> ○ 2.11 Standard Hydrogen Electrode and Measurement of Electrode Potential ○ 2.12 Other Reference Electrode and Measurement of Electrode Potential
<p>Week 9: 28/03/2024 to 30/03/2024</p> <ul style="list-style-type: none"> ○ 2.13 Electrochemical Series ○ 2.14 Application of Electrochemical Series ○ 2.15 Activity and Activity coefficient of the electrolyte ○ 2.16 Standard State
<p>Week 10: 01/04/2024 to 06/04/2024</p> <ul style="list-style-type: none"> ○ 2.17 Nernst Equation for EMF of Cell ○ 2.18 Nernst Equation for Electrode Potential ○ 2.19 Calculation of Equilibrium Constant of Cell reaction ○ 2.20 Polarization
<p>Week 11: 08/04/2024 to 13/04/2024</p> <ul style="list-style-type: none"> ○ 2.21 Decomposition Voltage/Potential Deposition ○ 2.22 Discharge of Potential ○ 2.23 Overvoltage or Over Potential
<p>Week 12: 15/04/2024 to 20/04/2024</p> <ul style="list-style-type: none"> ○ 2.24 Hydrogen Overvoltage ○ 2.25 Anodic Overvoltage and Oxygen Overvoltage ○ 2.26 Application of Overvoltage
<p>Week 13: 22/04/2024 to 27/04/2024</p> <ul style="list-style-type: none"> ○ 2.27 Concentration Cell ○ 2.28 Types of Concentration Cell
<p>Week 14: 29/04/2024 to 04/05/2024</p> <ul style="list-style-type: none"> ○ 2.29 EMF of Concentration Cell ○ 2.30 Review of Various Types of Electrochemical Cells
<p>Week 15 & 16: 06/05/2024 to 15/05/2024</p> <ul style="list-style-type: none"> ○ 2.32 Determination of Activities and Activity Coefficient from EMF Measurements ○ 2.33 Application of EMF Measurement



LESSON PLAN

Name of Assistant Professor: Sahil

Class: B.Sc II N.M Inorganic Chemistry

Chemistry Lesson Plan: 16 Week (From Feb 2024 to May 2024)

Week 1: 31/01/2024 to 03/02/2024 Chapter 1: Chemistry of Lanthanides 1.1 Introduction 1.2 Electronic structure 1.3 Physical properties of lanthanides 1.4 Oxidation states 1.5 Magnetic properties
Week 2: 05/02/2024 to 10/02/2024 1.6 Ionic radii and lanthanide contraction 1.7 Complex formation 1.8 Occurrence and isolation 1.9 Lanthanide compounds
Week 3: 12/02/2024 to 17/02/2024 Chapter 2: Chemistry of Actinides 2.1 General features and chemistry of actinides 2.2 Chemistry of separation of Np, Pu and Am from U
Week 4: 19/02/2024 to 24/02/2024 2.3 Comparison of properties of lanthanides and actinides and with transition elements Problems from chapter 1 & 2
Week 5: 26/02/2024 to 02/03/2024 Chapter 3: Theory of qualitative and quantitative inorganic analysis 3.1 Introduction 3.2 Basic Principles of Inorganic qualitative analysis Assignment I
Week 6: 04/03/2024 to 09/03/2024 3.3 Chemistry of analysis of various acidic radicals 3.4 Chemistry of identification of acidic radicals in typical combinations
Week 7: 11/03/2024 to 16/03/2024 3.5 Chemistry of interference of acid radicals including their removal in the analysis of basic radicals
Week 8: 18/03/2024 to 22/03/2024 3.1 Systematic analysis of basic radicals 3.2 Chemistry of various reaction 3.3 Identification of cations of group I
Week 9: 28/03/2024 to 30/03/2024 3.4 Identification of cations of group II A and separation of group II B 3.5 Identification and separation of group III

Week 10: 01/04/2024 to 06/04/2024 3.6 Identification and separation of group IV
Week 11: 08/04/2024 to 13/04/2024 3.7 Schematic flow chart of group V cations
Week 12: 15/04/2024 to 20/04/2024 3.8 Test of Ni^{2+} in the presence of Co^{2+} 3.9 Principle of gravimetric analysis 3.10 Theory of precipitation
Week 13: 22/04/2024 to 27/04/2024 3.11 Factors affecting solubility of precipitates 3.12 Particle size of the precipitates
Week 14: 29/04/2024 to 04/05/2024 3.13 Formation of precipitates 3.14 Desirable properties and contamination of precipitates
Week 15 & 16: 06/05/2024 to 15/05/2024 3.15 Treatment of the precipitates 3.16 Fractional precipitation Assignment II



Lesson Plan

Name of Assistant Professor: Sahil

Class: B. Sc I N.M

Chemistry lesson Plan: 16 weeks (From Feb 2024 to May 2024)

Week 1: 31/01/2024 to 03/02/2024 Chapter 1: Alkanes <ul style="list-style-type: none">○ Nomenclature, classification of carbon atoms in alkanes and its structure
Week 2: 05/02/2024 to 10/02/2024 <ul style="list-style-type: none">○ Isomerism in alkanes, sources
Week 3: 12/02/2024 to 17/02/2024 <ul style="list-style-type: none">○ Methods of formation○ Wurtz reaction○ Kolbe reaction
Week 4: 19/02/2024 to 24/02/2024 <ul style="list-style-type: none">○ Corey- House Reaction and○ Decarboxylation of carboxylic acids○ Assignment I
Week 5: 26/02/2024 to 02/03/2024 <ul style="list-style-type: none">○ Physical properties of Alkanes
Week 6: 04/03/2024 to 09/03/2024 <ul style="list-style-type: none">○ Mechanism of free radical halogenation of alkanes○ Reactivity and selectivity
Week 7: 11/03/2024 to 16/03/2024 <ul style="list-style-type: none">○ Nomenclature of Cycloalkanes,○ Baeyer's strain theory
Week 8: 18/03/2024 to 22/03/2024 <ul style="list-style-type: none">○ Limitations of Baeyer's strain theory○ Theory of strain less rings.
Week 9: 28/03/2024 to 30/03/2024 <ul style="list-style-type: none">○ Nomenclature of alkenes and its structure
Week 10: 01/04/2024 to 06/04/2024 <ul style="list-style-type: none">○ Methods of formation: dehydration of alcohols, dehydrohalogenation of alkyl halide
Week 11: 08/04/2024 to 13/04/2024 <ul style="list-style-type: none">○ Hofmann elimination and their mechanism
Week 12: 15/04/2024 to 20/04/2024 <ul style="list-style-type: none">○ The Saytzeff rule and relative stabilities of alkenes
Week 13: 22/04/2024 to 27/04/2024 <ul style="list-style-type: none">○ Chemical reactions: electrophilic and free radical additions
Week 14: 29/04/2024 to 04/05/2024 <ul style="list-style-type: none">○ Addition of halogens, halogen acids, hydroboration-oxidation
Week 15 & 16: 06/05/2024 to 15/05/2024 <ul style="list-style-type: none">○ Oxymercuration-reduction, Ozonolysis and hydration.○ Markownikoff's rule of addition.