**Lesson Plan**

**Name of Assistant/Associate Professor**: **Seema kashyap**

**Class &Section: B. Sc III, N.M. & Med., (Sem -6th )**

**Inorganic Chemistry** : (**From FEB 2024 to May 2024)**

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| **Chapter 1 Organometallic Chemistry** | **Dates** |
| * 1. Definition   2. Nomenclature and classification of Organo metallic compounds | Feb , Week Ist |
| 1.3 Preparation , properties and bonding of alkyls of lithium | Feb , Week 2nd |
| 1.4 Preparation , properties and bonding of alkyls of Aluminium | Feb , Week 3rd |
| 1.5 Preparation, properties and bonding of alkyls of Mercury | Feb , Week 4th |
| 1.6 Preparation, properties and bonding of alkyls of Sn  1.7 Nature of bonding in Metal Carbonyls | March, Week Ist |
| 1.8 A brief account of metal Ethylenic complexes  1.9 Mononuclear Carbonyls | March, Week Ist |
| **Chapter 2 Acid & Bases , HSAB Concept** |  |
| 2.1 Arrhenius concept of Acid & Bases  2.2 Advantages & Limitations of Arrhenius concept | March , Week 2nd |
| 2.3 Bronsted Lowry concept of Acid and Bases  2.4 Lux – flood concept of Acid and Bases | March , Week 2nd |
| 2.5 Solvent system concept of Acid and Bases  2.6 Lewis system concept of Acid and Bases | March, Week 3rd |
| 2.7 Relative strength of Acid and Bases  2.8 Concept of Hard and soft Acids and Bases | March, Week 3rd |
| Problems from chapter 1 | Marchl, Week 4th |
| Problems from chapter 2 and test  Problems from chapter 2 | April,Week Ist |
| Test of chapter 2 | April,Week Ist |
| Week 9 Chapter 3 Bio Inorganic Chemistry | April,Week 2nd |
| 3.1 Essential and Trace elements in biological processes  3.2 Metallopophyrins with special reference to haemoglobin and myoglobin | April, Week 2nd |
| 3.6 Nitrogen Fixation Metalloproteins | April, Week 3rd |
| ,Problems of Chapter – 3 | April, Week 3rd |
| Assignment I | April, Week 3rd |
| ,  **Chapter -4** **Silicons & Phosphazenes** |  |
| 4.1 Silicons as an examble of Inorganic polymers | April, Week 4th |
| 4.2Silicons fluids & oils , siliconselastoma | April Week 4th |
| 4.3 Silicon Resins , Polysiloxane copolymers | May, Week Ist |
| 4.4 Introduction to Phosphazene0,s method of preparation of phosphazenes | May, Week Ist |
| 4.5 Structure and bonding in Phosphazenes | May , Week 2nd |
| 4.6 Bonding in Triphosphazenes  4.7 Uses of Phosphazenes | May, Week 2nd |
| **Assignment – II** |  |

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**Physical Chemistry - (From FEB 2024 to May 2024)**

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| **Chapter 1 Photochemistry** | **Dates** |
| * Interaction of radiation with matter, difference between thermal and | Feb , Week Ist |
| * photochemical processes. Laws of photochemistry: | Feb , Week 2nd |
| * Grotthus-Drapper law, StarkEinstein law (law of photochemical equivalence), | Feb , Week 3rd |
| * Jablonski diagram depiciting various processes occurring in the excited state, | Feb , Week 4th |
| * qualitative description of fluorescence, | March, Week Ist |
| * phosphorescence, quantum yield, | March, Week Ist |
| * phosphorescence, quantum yield, |  |
| * non-radiative processes (internal conversion, intersystem crossing), | March , Week 2nd |
| * photosensitized reactions-energy transfer processes (simple examples) | March , Week 2nd |
| **Chapter 2 Solutions, Dilute Solutions and Colligative Properties** |  |
| * Ideal and non-ideal solutions, methods of | March, Week 3rd |
| * expressing concentrations of solutions, | March, Week 3rd |
| * Dilute solutions, Raoult’s law. | Marchl, Week 4th |
| * Colligative properties: (i) relative lowering of vapour pressure (ii) Elevation in boiling point | April,Week Ist |
| * (iii)) depression in freezing point (iv) osmotic pressure. | April,Week Ist |
| * Thermodynamic derivation of relation between amount of solute and elevation in boiling point and depression in freezing point.. | April,Week 2nd |
| * Applications in calculating molar masses of normal, dissociated and associated solutes in solution. | April, Week 2nd |
| **Chapter 3 Phase Equillibrium** |  |
| * Statement and meaning of the terms – phase, | April, Week 3rd |
| * component and degree of freedom, | April, Week 3rd |
| * thermodynamic derivation of Gibbs phase rule, | April Week 4th |
| * phase equilibria of one component system –Example – water system | April Week 4th |
| * Phase equilibria of two component systems solid-liquid equilibria, | May, Week Ist |
| * simple eutectic Example Pb-Ag system, | May, Week Ist |
| * desilverisation of lead. | May, Week Ist |
| * Revision and Practical | May, Week Ist |
| **Chapter 3: Introduction to statistical mechanics** |  |
| * Need for statistical thermodynamics, | May , Week 2nd |
| * thermodynamic probability, Maxwell Boltzmann distribution statistics, Born oppenheimer approximation, | May, Week 2nd |
| * partition function and its physical significance. Factorization of partition function. | May, Week 2nd |
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**Organic Chemistry : Week ( From FEB 2024 to May 2024)**

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| **Chapter 1 Organosulphur Compound** | **Dates** |
| * Nomenclature Structural feature, M.O.P | Feb , Week IST |
| * Chemical rxn of thiols, thioether, sulphonic acid, | Feb , Week 2nd |
| * Sulphonamides &sulphaguanidine | Feb , Week 3rd |
| * Synthetic detergents ,alkyl & aryl sulphonates | Feb , Week 4th |
| **Chapter 2: Heterocyclic compound** |  |
| * Molecular orbital str ,Aromatic characterstics of pyrrole,furan | March, Week Ist |
| * Aromatic characterstics of thiophene & pyridine | March, Week Ist |
| * M.O.P ,& Chemical Rxn with mechanism of electrophilic substitution |  |
| * Mech. Of Nucleophilic substitution Reaction in Pyridine derivatives * Comparison of basicity of pyridine piperidine & pyrrole | March , Week 2nd |
| * Introduction of condensed 5-6 membered heterocycles | March , Week 2nd |
| * Preparation & reaction of indole | March, Week 3rd |
| * Rxn of quinolone & isoquinoline | March, Week 3rd |
| * Fischer Indole synthesis & skraup synthesis | Marchl, Week 4th |
| * Bischler napieralski synthesis, Mech. of Electrophilic substitution of indole | April,Week Ist |
| * Mech. Of electrophilic substitution Rxn. Of Quinoline & Isoquinoline | April,Week Ist |
| **CHAPTER-3 Organic synthesis via enolates** |  |
| * Acidity of hydrogen, alkylation of diethylmalonate &Ethyl acetoacetate | April,Week 2nd |
| * Synthesis of Ethylacetoacetate,claisen condensation Keto-enol tautomerism of ethyl acetoacetate | April, Week 2nd |
| * Alkylation of 1-3 dithianes * Acylation of Enamines | April, Week 3rd |
| **CHAPTER-4 Amino Acids,proteins & Nucleic Acids** |  |
| * Classification,structure &stereochemistry of amino acids, Acid-base behavior | April, Week 4th |
| * Isoelectric point & electrophoresis, Prp & reaction of Amino acids | April Week 4th |
| * Structure & Nomenclature of peptides & proteins, | May, Week Ist |
| * Peptide structure determination ,End group analysis, selective Hydrolysis of peptides | May, Week Ist |
| * Classical peptide synthesis ,Solid phase peptide synthesis | May, Week Ist |
| * Structure of peptides & proteins , levels of proteins structure | May, Week Ist |
| * Problem of chapter heterocyclic compounds |  |
| * Test of Chapter 2 | May , Week 2nd |
| * Denaturation/Renaturation | May, Week 2nd |
| * , nucleic acids introduction , constituents of nucleic acids | May , Week 2nd |
| * Ribonucleosides , ribonucleotides ,double helical structure of D.N.A | May, Week 2nd |
| * Revision And Practical | May, Week 2nd |