**Lesson Plan for Session 2023-24(Even Semester)**

B. Sc. Ist Year (IInd Semester)

Paper-V (CH-105) Physical Chemistry (Theory)

Name of Assistant Professor: Mr. Parveen Kumar

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| Sr. No. | Time Periods | Topics/Chapters to be covered | Topic of Assignment/ Tests to be given to students |
| 1 | 01/01/2024-20/01/2024 | Kinetics Rate of reaction, rate equation and its types, factors influencing the rate of a reaction – concentration, temperature, pressure, solvent, light, catalyst. Order of a reaction, integrated rate expression for zero order, first order, second and third order reactions. Half life period of a reaction. Effect of temperature on the rate of reaction – Arrhenius equation. | Test of kinetics |
| 2 | 21/01/2024-08/02/2024 | Theories of reaction rate – Simple collision theory for unimolecular collision. Transition state theory of bimolecular reactions. | Assignment |
| 3 | 09/02/2024-20/02/2024 | Electrochemistry Electrolytic conduction, factors affecting electrolytic conduction, specific conductance, molar conductance, equivalent conductance and relation among them, their variation with concentration. |  |
| 4 | 21/02/2024-22/03/2024 | Arrhenius theory of ionization, Ostwald’s Dilution Law. Debye Huckel – Onsager’s equation for strong electrolytes (elementary treatment only), Application of Kohlrausch’s Law in calculation of conductance of weak electrolytes at infinite dilution. Applications of conductivity measurements: determination of degree of dissociation, determination of Ka of acids determination of solubility product of sparingly soluble salts, conductometric titrations | Test |
| 5 | 01/04/2024-10/04/2024 | Concepts of pH and pKa, Buffer solution, Buffer action, Henderson – Hazel equation, Buffer mechanism of buffer action. |  |
| 6 | 11/04/2024 to till exam | Revision |  |

(Parveen Kumar)

**Lesson Plan for Session 2023-24(Even Semester)**

B. Sc. II Year (IVth Semester)

Paper-XI (CH-204) Inorganic Chemistry (Theory)

Name of Assistant Professor: Mr. Parveen Kumar

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| **Sr. No.** | **Time Periods** | **Topics/Chapters to be covered** | **Topic of Assignment/ Tests to be given to students** |
| 1 | 01/01/2024-20/01/2024 | Chemistry of f-Block elements Lanthanides: Electronic structure, oxidation states, magnetic properties, complex formation, colour, ionic radii and lanthanide contraction, occurrence, separation of lanthanides, Lanthanide compounds. | Test |
| 2 | 21/01/2024-08/02/2024 | Actinides: General characteristics of actinides, chemistry of separation of Np, Pu and Am from uranium, Transuranic elements, comparison of properties of Lanthanides and actinides with transition elements. |  |
| 3 | 09/02/2024-20/02/2024 | Theory of Qualitative and Quantitative Analysis Chemistry of analysis of various groups of basic and acidic radicals, chemistry of identification of acid radicals in typical combination, | Assignment |
| 4 | 21/02/2024-22/03/2024 | chemistry of interference of acid radicals including their removal in the analysis of basic radicals, |  |
| 5 | 01/04/2024-10/04/2024 | Common ion effect, solubility product, theory of precipitation, co-precipitation, post precipitation, purification of precipitates. |  |
| 6 | 11/04/2024 to till exam | Revision |  |

(Parveen Kumar)

**Lesson Plan for session 2023-24(Even Semester)**

**B.Sc. IIIrd Year (VI Semester)**

Paper XVIII (Theory) Inorganic Chemistry (CH-304)

Name of Assistant Professor: Mr. Parveen Kumar

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| Sr. No. | Time Periods | Topics/Chapters to be covered | Topic of Assignment/ Tests to be given to students |
| 1 | 01/01/2024-20/01/2024 | **Organometallic Chemistry**  Definition, nomenclature and classification of organometallic compounds. | Test |
| 2 | 21/01/2024-08/02/2024 | Preparation, properties, and bonding of alkyls of Li, Al, Hg, and Sn a brief account of metal-ethylenic complexes, mononuclear carbonyls and the nature of bonding in metal carbonyls. | Assignment |
| 3 | 09/02/2024-20/02/2024 | Concept of Hard and Soft Acids & Bases |  |
| 4 | 21/02/2024-22/03/2024 | **Bioinorganic Chemistry**  Essential and trace elements in biological processes, metalloporphyrins with special reference to haemoglobin and myoglobin. Biological role of alkali and alkaline earth metal ions with special reference to Ca2+. Nitrogen fixation. | Assignment |
| 5 | 01/04/2024-10/04/2024 | **Silicones and Phosphazenes**  Silicones and phosphazenes as examples of inorganic polymers, nature of bonding in triphosphazenes. |  |
| 6 | 11/04/2024 to till exam | Revision |  |

(Parveen Kumar)