Lesson Plan

**Name of the Faculty Dr. Yameeka Chhikara (theory and Practical)**

**Discipline: common**

**Semester: Ist**

**Subject: Engg Chemistry** BSE-CHE-101G (Theory)  **code** BSC-CHE-102G (practical)

**Lesson Plan Duration 15 Weeks (From August, 2018 to November, 2018)**

**Lecture-03, Practicals-03, Tutorial-01**

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|  | |  | | **Topic Theory** | **Practical** | **Practical** CH–103F |
| **Week** | | **Lecture** | |  | **Day** | **Topic** |
| **1st** | | **1st** | | **Section A Water Chemistry and Corrosion:** Hardness of water- Introduction | **1st** | 1. To determine the total hardness of given water sample by EDTA method.1st group |
|  | | **2nd** | | Measurement of hardness by EDTA method, Methods of water softening (Lime soda process | **2nd** | **Practical for 2nd group** |
|  | | **3rd** | | Zeolite Process, Demineralisation process) | **3rd** |  |
|  | | **4rth** | | Tutorial Discussion &Assignment 1 | **4rth** |  |
| **2nd** | | **5th** | | Corrosion: Introduction, Types | **5th** | 2. Calculate the strength of strong acid by titrating it with strong base using conductometer (1st group) |
|  | | **6th** | | Factor affecting corrosion | **6th** | Practical for 2nd group |
|  | | 7th | | methods of prevention | 7th |  |
|  | | 8th | | Tutorial Discussion &Assignment2 | 8th |  |
| **3rd** | | **9th** | | **Intermolecular forces:** Ionic, dipolar and Van der Waals interactions theory). | **9th** |  |
|  | **10th** | | | . Equations of state of real gases | **10th** | 3 To prepare the of urea formaldehyde and phenol formaldehyde resin. (1st group) |
|  | **11th** | | | critical phenomena | **11th** | **Practical for 2nd group** |
|  | 12th | | | Tut Discussion Assignment 3 | 12th |  |
| **4rth** | 13th | | | **UNIT-I Atomic and molecular structure:** Schrodinger equation(Introduction and concept only)..) | 13th |  |
|  | 14th | | | Forms of the hydrogen atom wave functions, | 14th | 4) . Determine the viscosity of given liquid by using viscometer / Redwood viscometer.1st group) |
|  | **15th** | | | and the plots of these functions to explore their spatial variations | **15th** | **Practical for 2nd group** |
|  | **16th** | | | Tut Discussion Test | **16th** |  |
| **5th** | **17th** | | | Molecular orbital energy level diagrams of diatomic molecules. | **17th** |  |
|  | **18th** | | | Pi-molecular orbitals of butadiene and benzene. | **18th** | 5. Calculate the saponification value / value of given oil sample. (1st group) |
|  | **19th** | | | Crystal field theory and the energy level diagrams for transition metal ions | **19th** | **Practical for 2nd group** |
|  | **20th** | | | Band structure of solids | **20th** |  |
|  |  | | | Tut Discussion |  |  |
| **6th** | | **21th** | | The role of doping on band structures. | **21th** |  |
|  | | **22th** | | **Periodic properties**: Effective nuclear charge, penetration of orbitals, variations of s, p, d and f | **22th** | 6. Determination of chloride content in given water sample..(1st group) |
|  | | **23th** | | energies of atoms in the periodic table, electronic configurations, atomic and ionic sizes, | **23th** | **Practical for 2nd group** |
|  | | **24th** | | Tut Discussion &Assignment 5 | **24th** |  |
| **7th** | | **25th** | | ionization energies, electron affinity and electronegativity, | **25th** |  |
|  | | **26th** | | polarizability, oxidation states. | **26th** | 7 Determination of the partition coefficient of a substance between two immiscible liquids.. (1st group) |
|  | | **27th** | | **UNIT-II**  **Stereochemistry:** Representations of 3 dimensional structures, structural isomers and stereoisomers, | **27th** | **Practical for 2nd group** |
|  | | **28th** | | Tut Discussion and Assignment 6 | **28th** |  |
| 8th | | 29th | | configurations, symmetry and chirality, enantiomers | 29th |  |
|  | | 30th | | diastereomers, optical activity, absolute configurations | 30th | 8. .Calculate the strength of strong acid by titrating it with strong base using P H meter.(1st group) |
|  | | **31st** | | conformational analysis. Isomerism in transitional metal  Compounds.  , | **31st** | **Practical for 2nd group** |
|  | | **32nd** | | Tut Discussion and Assignment 7 | **32nd** |  |
| **9th** | | **33th** | | **Organic reactions and synthesis of a drug molecule** :Introduction to reactions involving substitution, | **33th** | 9 To Prepare iodoform. |
|  | | | **34th** | addition, elimination, oxidation, reduction | **34th** |  |
|  | | | 35th | Test | 35th | **Practical for 2nd group** |
|  | | | 36th | Tut Discussion and Assignment 8 | 36th |  |
| **10th** | | | 37th | cyclization (mechanism excluded). Synthesis of commonly used drug molecules Asprin | 37th |  |
|  | | | **38th** | cyclization (mechanism excluded). Synthesis of commonly  used drug molecules Paracetamol | **38th** | 10. Calculate the acid value of given oil sample |
|  | | | **39th** | **UNIT-IV Spectroscopic techniques and applications:** Basic concept of spectroscopy | **39th** | **Practical for 2nd group** |
|  | | | **40th** | Principle and Applications of different spectroscopic techniques UV-Visible | **40th** |  |
|  | | | **41th** | Tut Discussion | **41th** |  |
| **11th** | | | **42th** | Test | **42th** | 11 Calculate the Rf value of given sample using Paper  chromatography.  . |
|  | | | 43th | Principle and Applications of different spectroscopic and IR spectroscopy | 43th | **Practical for 2nd group** |
|  | | | **44th** | Nuclear magnetic resonance and magnetic resonance imaging | **44th** |  |
|  | | | **45th** | Tut Discussion and Assignment 9 | **45th** |  |
| **12th** | | | 46th | Problems | 46th |  |
|  | | | **47th** | Elementary discussion on Flame photometry | **47th** |  |
|  | | | **48th** | Revision chapter 1 | **48th** | **Practical for 2nd group** |
|  | | | **49th** | Tut Discussion | **49th** |  |
| **13th** | | | **50th** | Revision chapter 1 | **50th** |  |
|  | | | **51st** | Revision chapter 2 | **51st** | **Revision of practical1,2** |
|  | | | **52th** | Revision chapter 2 | **52th** |  |
|  | | | **53th** | Tut discussion | **53th** | **Revision of practical 1,2** |
| **14th** | | | **54th** | Revision chapter 3 | **54th** |  |
|  | | | **55th** | Revision chapter 3 | **55th** | **Revision of practical 3,4** |
|  | | | **56th** | Revision chapter 4 | **56th** |  |
|  | | | **57th** | Tut Discussion | **57th** | **Revision of practical 3,4** |
| **15th** | | | **58th** | Revision chapter 5 | **58th** |  |
|  | | | **59th** | Revision chapter 5 | **59th** | **Revision of practical 5,6** |
|  | | | **60th** | Revision chapter 5 | **60th** |  |