LESSON PLAN

Name of the Faculty: **Sh. JASWANT SINGH**
Branches: **Mechanical.Engg.**
Session **2023-2024 , 2nd Semester (Even)**
Subject : **Applied Chemistry**
Lesson Plan Duration: **18 Weeks (15/02/2024 TO 14/06/2024)**
Work Load (Lecture/Practical) per week (in hours): Lecture= 03, Practical=1

WEEKS	DAYS	THEORY TOPICS	PRACTICALS
1	1	Unit -1 **Atomic structure ,Periodic table, chemical bonding** Some Basic Concepts in Chemistry General introduction-Importance and scope of chemistry. Heisenberg s uncertainty principle,	To prepare standard solution of oxalic acid.
	2	Classification of matter: a) Physical classification: Solid, Liquid and Gases (only definition with examples). Bohr's model of atom (postulates only) i,e concept of orbit or shell. b) Chemical Classification: elements, compounds and mixture (Definition and examples)	To prepare standard solution of oxalic acid.
2	3	Definition of atom, molecule, symbol and significance of symbol.	To dilute the given KMNO4 SOLUTION.
	4	Chemical bonding ,ionic bonding covalent bond & physical properties	
3	5	**Unit-2 Metals and alloys** - Definition of metallurgy, types of metallurgy Principles of filling electrons in various orbital: a) Aufbau principle b) Hund's Rule of maximum multiplicity c) Pauli's exclusion principle	To find out the strength in gm per litre of an unknown solution of NAOH using a standard N/10 Oxalic acid solution.
	6	Calculation of mass percentage composition of elements in compound.	
4	7	Assignment, Class Test Electronic configuration of atoms (upto Z=30)	Viva voce
	8	Class test. **1st sessional Exam**	**15.03.2024 To 21.03.2024**
5	9	Fundamental particles of atom: electron, proton and neutron, charge and mass of electron, proton and neutron.	To determine the total hardness of given water sample by EDTA method
	10	**Unit-3 Water,solution acids and bases**, Acid, base, Isotopes, isobars and isotones (definition with examples). Type of water: Soft and hard water. Types of hardness of water	To determine the viscosity of lubricant by using Redwood viscometer
6	11	Atomic number (Z), mass number (A), calculation of protons, electrons and neutrons in $^{A}_{z}X$.	
	12	difference between orbit and orbital.	
7	13	Definition of solution, Binary solution, aqueous solution. And Concentration of solution	To determine the ph of different solutions using a digital pH meter.
	14	Definition of solute, solvent, Definition of acidity and basicity.	Revision
8	15	Revision and Numericals ,Class Test	Viva voce
	16	Class test, **2nd Sessional Exam**	**22.04.2024 To 26.04.2024**

9	17	Definition of pH and industrial application of pH.	
	18	Hard & soft water arrehinius concept	
10	19	**Unit-4 Fuels & Lubricants-** Definition of fuel, classification of fuel a) on the basis of physical state b) on the basis of source	To determine the calorific value of a solid /liquid fuels using a Bomb calorimeter.
	20	Definition of calorific value Characteristics of good fuel, advantages of gaseous fuel over solid fuels	
11	21	Composition of CNG LPG & BIOGAS	Viva voce
	22	Type of lubrications – hydrodynamic and boundary lubrication with illustrative diagrams	Revision
12	23	Properties of lubricants a) Physical properties- viscosity, viscosity index, cloud point, pour point, flash point, fire point, oiliness	To determine the viscosity of lubricant by using Redwood viscometer.
	24	Chemical properties- TAN or TAV (Total acid number), emulsification, aniline point and iodine value.	Revision
13	25	**Unit-5 Polymer and Electrochemistry-** Definition of polymer, Degree of Polymerization Monomer and uses of PE, PVC, PS, Teflon, Nylon, Bakelite.	To determine total dissolved solids (TDS) in ppm in given sample of water gravimetrically.
	26	Brief introduction to addition and condensation polymers with suitable examples (PE, PVC, PS, Teflon, Nylon-66, Bakelite).	To prepare a sample of Phenol-formaldehyde resin (Bakelite)/ Nylon -66 in lab
14	27	Definition of plastics, thermoplastic and thermosetting polymer. Uses of polymer and plastic in daily life and in industries	Revision
	28	Class Test. **3rd Sessional Exam**	**27.05.2024 To 31.05.2024**
15	29	Definition of plastics, thermoplastic and thermosetting polymer. Uses of polymer and plastic in daily life and in industries	Viva voce
	30	Revision	Viva voce
16	31	Revision	Viva voce
	32	Revision	Revision
17	33	Revision	Revision
18	34	Revision	Revision

Note: Class Test and Sessional Exam will be given as per Academic Calendar.