

Govt polytechnic Jhajjar				
Name of faculty- Ms sheetal				
Branch - Civil, Ceramic and mechanical(1st and 2nd semester)				
Subject- Applied Chemistry				
Lesson plan duration- 16 weeks				
work load (lecture /practical)(in hours) : Lecture-03, Practical-04				
week	Theory		Practical	
	Lecture day	Topic (Including assignment and tests)	Practical Day	Name of Experiment
1st	1	Unit-1 Bohr's model of atom and derivation of de-broglie's equation	1&2	Exp 1:To prepare standard solution of oxalic acid.
	2	Heisenberg's uncertainty principal, modern concept of atomic structure		
	3	Definition of orbital, shapes of s, p and d orbitals, quantum number and their significance		
2nd	4	Electronic configuration: Aufbau's principle, Pauli's exclusion theory and Hund's rule	3&4	Exp 2 :To dilute the given solution of KMnO ₄
	5	Electronic configuration of atoms with atomic numbers upto 30		
	6	Modern periodic law and table		
3rd	7	Classification of elements in to s, p, d and f blocks, metals, non metals and metalloids	5&6	Practice of exp no.'s 1&2
	8	Chemical bonding, cause of bonding, ionic bond, covalent bond, and metallic bond, electron sea model		
	9	ionic, covalent and metallic substances		
4th	10	revision of unit 1	7&8	Exp 3: To find the strength in gm/lit of given solution of NaOH using N/10 standard oxalic acid solution
	11	1st sessional test (unit 1)		
	12	Unit 2: Mechanical properties of metals (conductivity, elasticity, stiffness, lusture, hardness, toughness.		
5th	13	ductility, malleability, brittleness and impact resistance and their uses	9&10	Exp 4: To find out the total alkalinity in ppm of water sample with the help of standard sulphuric acid solution
	14	Defintion of mineral, ore, gangue, flux and slag		
	15	Metallurgy of iron from haematite using blast furnace, commercial varieties of iron		
6th	16	Alloys: definition, necessity of making alloys, composition, properties and uses of duralumin and steel	11&12	Exp 5: To determine the total hardness of given sample of water by EDTA method
	17	Heat treatment of steel		
	18	Unit:3 Arrhenius concept of acids and bases, strong and weak acids and bases, pH and its significance		
7th	19	Numerical problems related to pH	13&14	Exp 6: To determine the amount of total dissolved solids (TDS) in ppm in given sample of water gravimetrically
	20	Hard and soft water, causes and types of hardness of water		
	21	Expression of hardness of water in ppm		
8th	22	Disadvantages of using hard water in boilers	15&16	Practice of exp no's 3&4
	23	Sterilization of water by ion exchange method		
	24	water sterilization by chlorine, UV radiation and Reverse osmosis		
9th	25	2nd sessional test (unit 2&3)	17&18	Exp7: To determine the pH of different solutions using digital pH meter
	26	Unit -4: Definition of fuel, classification of fuel, higher and lower calorific value and units of calorific value		
	27	characteristics of an ideal fuel, composition and refining of petroleum		
10th	28	Composition, properties and uses of CNG, LPG, PNG and LNG	19&20	Exp 8: Demonstrate how to calculate the calorific value of solid/liquid fuel using bomb calorimeter
	29	Advantages of gaseous fuels over solid and liquid fuels. Scope of hydrogen as a fuel in future		
	30	Functions and qualities of good lubricants, classification of lubricants with examples		
11th	31	Physical properties of lubricants (oiliness, viscosity, viscosity index, flash and fire pt., ignition temp and pour point	21&22	Exp 9: To determine the viscosity of given lubricating oil by using Redwood viscometer
	32	Unit 5: definition of polymers, classification, additional and condensation polymers		

	33	Preparation , properties and uses of (polythene, PVC, Nylon-66 and Bakelite)		
12th	34	Definition of plastics. Thermoplastics and thermosetting polymers, natural rubber, neoprene and other rubbers	23&24	Exp 10: To prepare a sample of phenol-formaldehyde resin (bakelite)
	35	definition of corrosion, dry and wet corrosion , factors affecting rate of corrosion		
	36	Hot dipping, metal cladding, cementing , quenching and cathodic protection		
13th	37	Definition of nanotechnology and its applications	25&26	Practice of Exp no's 5&6
	38	3rd sessional test (unit 4&5)		
	39	revision of unit 1		
14th	40	revision of unit 2	27&28	Practice of Exp no's 7 and 9
	41	revision of unit 3		
	42	revision of unit 4		
15th	43	revision of unit 5	29&30	practice of final practical
	44	Quiz of unit 1&2		
	45	Quiz of unit 3, 4 & 5		
16th	46	full syllabus revision	31&32	viva - voce
	47	test of full syllabus		
	48	Quiz of full syllabus		