

LESSON PLAN

Discipline: Civil/Mech/ Elect./CSE	Year: 1st year	Name of the teaching faculty: Sunil Kumar Martha (GF Chemistry)
Subject : Applied Chemistry & EVS	No of days/week class allotted: 4	No. of weeks: 32 (From:17-08-26 to 17-04-27)
Week	Class Day	Theory Topics
1	1	Unit 1: Definition and classification of pollution and pollutant
	2	Air pollution and its sources
	3	Types of air pollutant
	4	Effect of air pollutants and its control
2	1	Gaseous pollution control
	2	Effect of air pollution
	3	Noise pollution (Definition & cause)
	4	Sources of noise pollution
3	1	Effect of noise pollution
	2	Control of noise pollution
	3	Unit 2: Water pollution and its sources
	4	Types of water pollutants
4	1	Characteristics of water pollutants
	2	Primary method of waste water treatment
	3	Secondary method of waste water treatment
	4	Tertiary method of waste water treatment
5	1	Soil pollution(definition & cause)
	2	Effect of soil pollution
	3	Preventive measures of soil pollution
	4	Effect of fertilizer, insecticide & pesticide for soil pollution
6	1	Effect of irrigation for soil pollution
	2	Effect of E- Waste for soil pollution
	3	Unit 3: Solid waste generation sources and characterstics
	4	Sources and characterstics of E-waste
7	1	Sources and characterstics of biomedical waste
	2	Metalic and non metallic waste
	3	Collection of MSW
	4	Disposal of MSW
8	1	Sources and characterstics of hazardous waste
	2	Carbon credit
	3	Carbon footprint
	4	Environmental management in fabrication industry
9	1	Unit 4: Electronic concept of oxidation-reduction
	2	Electrolytes & Non electrolytes
	3	Faraday's laws of electrolysis
	4	Numericals on Faraday's law of electrolysis
10	1	Application of electrolysis: Electrometallurgy, electroplating
	2	Electrolytic refining
	3	Application of redox reaction in electrochemical cell (Primary/ Dry cell)
	4	Application of redox reaction in electrochemical cell (Secondary cells)

11	1	Corrosion and its types
	2	H ₂ liberation and O ₂ absorption mechanism
	3	Factors affecting rate of corrosion
	4	Internal corrosion preventive measure
12	1	External corrosion preventive measure
	2	Unit 5: Fuel and combustion of fuel
	3	Classification of fuels
	4	Calorific values
13	1	Calculation of HCV & LCV using Dulong's formulae
	2	Proximate analysis of coal
	3	Fuel rating of petrol and diesel
	4	Chemical composition & calorific values of Fuel
14	1	Lubricants and its function
	2	Properties of good lubricants
	3	Liquid Lubricants and properties
	4	Solid and semisolid lubricants
15	1	Emulsion
	2	Mechanism of lubricants
	3	Physical property (Viscosity, Viscosity index & oilness of Lubricants)
	4	Flashpoint, Firepoint, Cloudpoint & Pour point
16	1	Chemical properties (Coke number, TAN, Saponification Number)
	2	Revision & numerical Solving
	3	Unit 6: Rutherford model of atom & limitations
	4	Bohr's atomic theory
17	1	Explanation of H- Spectrum on the basis of Bohr's theory
	2	Quantum numbers
	3	Pauli's exclusion principle, Aufbau's principle, Electronic configuration of elements
	4	Heisenberg's uncertainty principle, Hund's rule for maximum multiplicity
18	1	Ionic bond and its characteristics & examples
	2	Co-Valent bond and its characteristics & examples
	3	Co-ordinate bond and its characteristics & examples
	4	H-bond and its characteristics & anomalous properties
19	1	Metallic bond and its characteristics
	2	Overlapping of orbitals Sigma and Pi bond
	3	Concept of Hybridization and its types
	4	Idea about solute, solvent and solution
20	1	Concentration terms of solution
	2	Numericals on Concentration of solution
	3	Revision
	4	Question answering session
21	1	Unit 7: Graphical presentation of water distribution
	2	Classification of Hard and soft water
	3	Salts causing water hardness & its unit
	4	Numericals on water hardness and conversion
22	1	Cause of poor Lathering of soap in hard water
	2	Problems caused in Boiler due to hard water
	3	Measurement of water hardness by EDTA method
	4	TDS & alkalinity estimation
23	1	Water softening techniques (Sodalime process)
	2	Zeolite process and ion exchange process
	3	Municipal water treatment (Sedimentation, coagulation)
	4	Filteration, sterilization

24	1	Revision & numerical Solving
	2	Question answering session
	3	Unit 8: Natural occurrence of metals (minerals, ores, gangue & flux)
	4	General principles of Metallurgy
25	1	Alloys – definition, purposes of alloying
	2	Ferrous alloys and nonferrous with suitable examples
	3	Properties and applications of Brass, Bronze, Stainless Steel, Alnico, Duralumin
	4	Polymers – monomer, homo and co polymers
26	1	Degree of polymerization
	2	Types of polymerization
	3	Plastics and its types
	4	Preparation of plastics by using PVC, PS, PTFE, nylon – 6, nylon-6,6 and Bakelite
27	1	Rubber and vulcanization of rubber
	2	Advantages of vulcanized rubber over natural rubber
	3	Revision and question answer session
	4	Unit 9: Ecosystem and its types
28	1	Structure of ecosystem
	2	Food chain & food web
	3	Carbon & Nitrogen cycle
	4	Phosphorous & Sulphur cycle
29	1	Global warming Causes and effects
	2	Green House effect & Ozone layer depletion
	3	Revision and question answer session
	4	Unit 10: Basics of Solar energy
30	1	Flat plate collector and its types
	2	Solar devices; (Solar pond, Solar water heater)
	3	Solar dryer, solar still
	4	Thermal characteristics of biomass
31	1	Biogas production mechanism (Utilization & storage)
	2	Future prospects of wind energy
	3	Wind energy in India
	4	Environmental benefits and problem of wind energy
32	1	New Energy Sources (Types & its need)
	2	Hydrogen energy, Tidal energy conversion.
	3	geothermal energy (Origin & Powerplants)
	4	Revision and question answer session

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