Lesson Plan

Environmental Science

Course Code-TH 5(a)

UNIT-1 -Ecosystem

SL.NO	TOPIC	DAY	DATE
1	Structure of ecosystem,	1	
2	Biotic & Abiotic components Food chain	2	
3	Aquatic (Lentic and Lotic) and terrestrial ecosystem	3	
4	Carbon Cycle	4	
5	Nitrogen cycle	5	
6	Sulphur, Phosphorus cycle	6	
7	Global warming -Causes, effects, process	7	
8	Green House Effect, Ozone depletion	8	
9	Revision	9	
10	Revision	10	

UNIT 2 -Air and Noise Pollution

SL.NO	TOPIC	DAY	DATE
1	Introduction: Definition of pollution and pollutant, Natural and man made sources of air pollution (Refrigerants, I.C., Boiler)	1	
2	Air Pollutants: Types, Particulate Pollutants Effects and control (Bag filter, Cyclone separator, Electrostatic Precipitator)	2	
3	Gaseous Pollution Control: Absorber, Catalytic Converter, Effects of air pollution due to Refrigerants, I.C., Boiler	3	
4	Noise pollution: sources of pollution,	4	
5	measurement of pollution level,	5	
6	Effects of Noise pollution, Noise pollution (Regulation and Control) Rules, 2000	6	
7	Revision	7	
8	Revision	8	
9	Revision	9	

UNIT -3 Water and Soil Pollution

1	Sources of water pollution,	1	
2	Types of water pollutants, Characteristics of water pollutants	2	
3	Turbidity, pH, total suspended solids, total solids BOD and COD: Definition, calculation	3	
4	Waste Water Treatment: Primary methods: sedimentation,	4	
5	froth floatation, Secondary methods:Activatedsludge treatment,	5	
6	Trickling filter,Bioreactor,TertiaryMethod:Membrane separation technology, RO (reverse osmosis).	6	
7	Causes, Effects and Preventive measures of Soil Pollution	7	
8	The Gift of the Magi	8	
9	Causes-Excessive use of Fertilizers, Pesticides and Insecticides,	9	

	Irrigation		
10	E-Waste.	10	
11	Revision	11	
12	Revision	12	
13	Revision	13	

UNIT -4 Renewable sources of Energy

SL.NO	TOPIC	DAY	DATE
1	Solar Energy: Basics ofSolar energy, Theory of flat plate collector.	1	
2	Flat plate collector (Liquid&Air). Importance of coating. Advanced collector.	2	
3	. Solar pond. Solar water heater, solar dryer. Solar stills.	3	
4	Biomass: Overview of biomass as energy source. Thermal characteristics of biomass as fuel.	4	
5	Anaerobic digestion. Biogas production mechanism. Utilization and storage of biogas.	5	
6	Wind energy: Current status and future prospects of wind energy. Wind energy in India. Environmental benefits and problem of wind energy.	6	
7	New Energy Sources: Need of new sources. Different types new energy sources.	7	
8	Applications of (Hydrogen energy,	8	
9	Ocean energy resources, Tidal energy conversion.	9	
10	Concept, origin and power plants of geothermal energy	10	
11	Revision	11	
12	Revision	12	
13	Revision	13	

UNIT 5 – Solid Waste Management, ISO 14000 & Environmental Management 06 hours

SL.NO	TOPIC	DAY	DATE
1	Solid waste generation- Sources, E- waste, biomedical waste	1	
2	characteristics of : Municipal solid waste	2	
3	E- waste	3	
4	biomedical waste	4	
5	Metallic wastes	5	
6	Non-Metallic wastes (lubricants, plastics, rubber) from industries	6	
7	Collection and disposal: MSW (3R, principles, energy recovery	7	
8	sanitary landfill),	8	
9	Hazardous waste.	9	
10	Air quality act 2004, air pollution control act 1981, water pollution and control act1996.	10	
11	Structure and role of Central and state pollution control board. Concept of Carbon Credit, Carbon Footprint	11	
12	Environmental management in fabrication industry, ISO14000: Implementation in industries, Benefits.	12	
13	Revision	13	
14	Revision	14	
15	Revision	15	