

LESSON PLAN: ENVIROMENTAL SCIENCE TH 5(a)		
DISCIPLINE: CIVIL/CE & IOT/ELECTRICAL/ MECHANICAL/ IT/AA/ETC	SEMESTER:1ST	NAME OF FACULTY: SWATILEENA SATPATHY, LECT.STAGE-II (CHEMISTRY)
Subject: Environmental Science	Per Week class allotted: 4	Semester From Date: 06/08/2025 To Date:04/12/2025
Week	Class/ Day	Theory
1st	1st	Structure of ecosystem, Biotic & Abiotic components
	2nd	Food chain and food web
	3rd	Aquatic (Lentic and Lotic) and terrestrial ecosystem
	4th	Carbon Cycle
2nd	1st	Nitrogen Cycle
	2nd	Sulphur, Phosphorus cycle
	3rd	Global warming -Causes, effects, process, Green House Effect
	4th	Ozone depletion
3rd	1st	Definition of pollution and pollutant
	2nd	Natural and man made sources of air pollution (Refrigerants, I.C., Boiler)
	3rd	Air Pollutants: Types, Particulate Pollutants: Effects
	4th	control-Bag filter
4th	1st	Cyclone separator, Electrostatic Precipitator
	2nd	Gaseous Pollution Control: Absorber, Catalytic Converter,
	3rd	Effects of air pollution due to Refrigerants, I.C., Boiler
	4th	Noise pollution: sources of pollution
5th	1st	Measurement of pollution level
	2nd	Effects of Noise pollution, Noise pollution (Regulation and Control) Rules, 2000
	3rd	Sources of water pollution, Types of water pollutants
	4th	Characteristics of water pollutants, Turbidity, pH, total suspended solids
6th	1st	Total Dissolved Solids, BOD and COD: Definition, calculation
	2nd	Waste Water Treatment: Primary methods: Sedimentation
	3rd	Froth floatation, Secondary methods: Activated sludge treatment
	4th	Trickling filter, Bioreactor, Tertiary Method: Membrane separation technology, RO (reverse osmosis)
7th	1st	Causes of Soil Pollution
	2nd	Effects and Preventive measures of Soil Pollution
	3rd	Causes-Excessive use of Fertilizers, Pesticides and Insecticides, Irrigation, E-Waste.
	4th	Solar Energy: Basics of Solar energy
8th	1st	Flat plate collector (Liquid & Air)
	2nd	Theory of flat plate collector. Importance of coating. Advanced collector
	3rd	Solar pond
	4th	Solar water heater
9th	1st	solar dryer.
	2nd	Solar stills
	3rd	Biomass: Overview of biomass as energy source
	4th	Thermal characteristics of biomass as fuel
10th	1st	Anaerobic digestion. Biogas production mechanism
	2nd	Utilization and storage of biogas
	3rd	Wind energy: Current status and future prospects of wind energy
	4th	Wind energy in India
11th	1st	Environmental benefits and problem of wind energy
	2nd	New Energy Sources: Need of new sources. Different types new energy sources
	3rd	Applications of Hydrogen energy
	4th	Ocean energy resources, Tidal energy conversion
12th	1st	Concept, origin and power plants of geothermal energy
	2nd	Solid waste generation
	3rd	Sources & Characteristics of Municipal solid waste
	4th	Sources & Characteristics of E-waste
13th	1st	Sources & Characteristics of Bio-medical waste
	2nd	Metallic wastes and Non-Metallic wastes (lubricants, plastics, rubber) from industries
	3rd	Collection of MSW
	4th	Disposal of MSW (3R, principles, energy recovery, sanitary landfill)
14th	1st	Hazardous waste
	2nd	Air quality Act 2004
	3rd	Air pollution Control Act 1981
	4th	Water Pollution and Control act1996
15th	1st	Structure and role of central pollution control board
	2nd	Structure and role of state pollution control board
	3rd	Concept of Carbon Credit, Carbon Footprint
	4th	Environmental management in fabrication industry. ISO14000: Implementation in industries, Benefits