


"PVC" NSSK Govt. Polytechnic Bilaspur at Kalol

Lesson Planning (Theory)

Branch:		Mechanical Engineering	Semester:	Second
Subject:		Environmental Science (AU102)	Session:	22 February to 15 June 2023
Teacher:		Ms.Himani Sharma		
Sr. No	No. of Lectures	Chapter/unit Discription	Detail of Contents	
1	4	UNIT-I ECOSYSTEM	Structure of ecosystem, Biotic & Abiotic components Food chain and food web Aquatic (Lentic and Lotic) and terrestrial ecosystem Carbon, Nitrogen, Sulphur, Phosphorus cycle. Global warming -Causes, effects, process, Green House Effect, Ozone depletion.	
2	5	UNIT-II AIR AND NOISE POLLUTION	Definition of pollution and pollutant, Natural and manmade sources of air pollution (Refriger- ants, I.C., Boiler) ,Air Pollutants: Types, Particulate Pollutants: Effects and control (Bag filter, Cyclone separator, Electrostatic Precipitator). Gaseous Pollution Control: Absorber, Catalytic Converter, Effects of air pollution due to Refrigerants, I.C., Boiler. Noise pollution: sources of pollution, measurement of pollution level, Effects of Noise pollu-tion, Noise pollution.	
3	6	UNIT-III WATER AND SOIL POLLUTION	Sources of water pollution, Types of water pollutants, Characteristics of water pollutants Tur-bidity, pH, total suspended solids, total solids BOD and COD:: sedimentation, froth floatation, Secondary meth- ods: Activated sludge treatment, Tricking filter, Bioreactor, Tertiary Method: Membrane sepa-ration technology,. Causes, Effects and Preventive measures of Soil Pollution: Causes-Excessive use of Fertilizers, Pesticides and Insecticides, Irrigation, E-Waste.	
4	6	UNIT-IV RENEWABLE SOURCES OF ENERGY	Solar Energy: Basics of Solar energy. Flat plate collector (Liquid & Air). Theory of flat plate col- lector. Importance of coating. Advanced collector. Solar pond. Solar water heater, solar dryer.Solar stills. Biomass: Overview of biomass as energy source. Thermal characteristics of biomass as fuel. Anaerobic digestion. Biogas production mechanism. Utilization and storage of biogas. Wind energy: Current status and future prospects of wind energy. Wind energy in India. Need of new sources. Different types new energy sources. Applications of (Hydrogen energy, Ocean energy resources, Tidal energy conversion.) Concept, origin and power plants of geothermal energy.	
5	7	UNIT-V SOLID WASTE MANAGEMENT, ISO 14000 & ENVIRONMENTAL MANAGEMENT	Solid waste generation- Sources and characteristics of : Municipal solid waste, E- waste, bio-medical waste.Metallic wastes and Non-Metallic wastes (lubricants, plastics, rubber) from industries. Collection and disposal: MSW (3R, principles, energy recovery, sanitary landfill), Hazardous. Waste Air quality act 2004, air pollution control act 1981 and water pollution and control act1996.Structure and role of Central and state pollution control board. Concept of Carbon Credit, Carbon	
Recommended Books			Environmental Science By Dr.Deepak Arora (Eagle Publication) Ecology & Environment by P.D. Sharma	

Himani
Signature of teacher


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