



GOVERNMENT POLYTECHNIC DARLIPALI, SUNDARGARH

ସରକାରୀ ବହୁବୃତ୍ତି ଅନୁଷ୍ଠାନ ଦଲିପାଲି, ସୁନ୍ଦରଗଡ଼

GOVERNMENT OF ODISHA | ଓଡ଼ିଶା ସରକାର

A/ P: Darlipali , NTPC Darlipali ,Dist.: Sundargarh, Odisha- 758001

Website: <https://gpdarlipali.org.in/> in E-mail: gpdarlipali24@gmail.com

DEPARTMENT OF HUMANITIES & SCIENCES

LESSON PLAN (ACADEMIC SESSION 25-26)

Discipline: Chemistry	Semester: 1st	Branch: AE&I MECHATRONICS MINING	Name of the teaching faculty: Sri Prabhanjan Pradhan
Subject: Environmental Science	No of Days/Week class allotted: 4	Semester from Date: 06/08/2025 to 04/12/2025 No of weeks: 17 No. of Period Available: 60	
Month	Week	No of periods available	Class Day Theory topics to be covered
AUGUST	1st	3P	Structure of ecosystem
			Biotic & Abiotic components Food chain
			Aquatic (Lentic and Lotic) and terrestrial ecosystem
	2nd	3P	Carbon Cycle
			Nitrogen cycle
			Sulphur, Phosphorus cycle
	3rd	4P	Global warming -Causes, effects, process
			Green House Effect, Ozone depletion
			Revision
			Revision
SEPTEMBER	4th	3P	Introduction: Definition of pollution and pollutant, Natural and man made sources of air pollution (Refrigerants, 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
	5th	4P	Noise pollution: sources of pollution,
			measurement of pollution level,
			Effects of Noise pollution, Noise pollution (Regulation and Control) Rules, 2000
	6th	4P	Revision
			CLASS TEST
			Sources of water pollution,
	7th	4P	Types of water pollutants, Characteristics of water pollutants
			Turbidity, pH, total suspended solids, total solids BOD and COD: Definition, calculation
			Waste Water Treatment: Primary methods: sedimentation,
			froth floatation, Secondary methods: Activated sludge treatment,
			Trickling filter, Bioreactor, Tertiary Method: Membrane separation technology, RO (reverse osmosis).



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OCTOBER	8th	3P	Causes, Effects and Preventive measures of Soil Pollution
			The Gift of the Magi
			Causes-Excessive use of Fertilizers, Pesticides and Insecticides Irrigation
	9th	4P	E-Waste.
			Revision
			Revision
			CLASS TEST
	10th	3P	Solar Energy: Basics of Solar energy, Theory of flat plate collector.
			Flat plate collector (Liquid & Air). Importance of coating. Advanced collector.
			Solar pond. Solar water heater, solar dryer. Solar stills.
	11TH	4P	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. Environmental benefits and problem of wind energy.
			New Energy Sources: Need of new sources. Different types new energy sources.
NOVEMBER	12th	4P	Applications of (Hydrogen energy,
			Ocean energy resources, Tidal energy conversion.
			Concept, origin and power plants of geothermal energy
			Revision
	13th	4P	Revision
			CLASS TEST
			Solid waste generation- Sources, E- waste, biomedical waste
			characteristics of : Municipal solid waste
	14th	4P	E- waste
			Biomedical waste
			Metallic wastes



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	16th	4P	Non-Metallic wastes (lubricants, plastics, rubber) from industries
			Collection and disposal: MSW (3R, principles, energy recovery
			MSW (3R, principles, energy recovery sanitary landfill),
			Hazardous waste.
DECEMBER	17th	3P	Air quality act 2004, air pollution control act 1981, water pollution
			Structure and role of Central and state pollution control board.
			Concept of Carbon Credit, Carbon Footprint
			Environmental management in fabrication industry, ISO14000:
			Implementation in industries, Benefits.
			Revision

Prabhanjan Pradhan
24/11/2025
Sri Prabhanjan Pradhan

Lect. Stg. I (Chemistry)

KM Sife
24/11/25
HOD,

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