



**DEPARTMENT OF MATHEMATICS AND SCIENCE**  
**ORISSA SCHOOL OF MINING ENGINEERING, KEONJHAR**

Website: [www.osme.co.in](http://www.osme.co.in), Email: [osmemath.science@gmail.com](mailto:osmemath.science@gmail.com)

## **LESSON PLAN**

<b>1<sup>st</sup> year</b>	<b>Branches:</b> <b>Civil &amp; Drilling</b>	<b>Semester:</b> <b>1<sup>st</sup> semester</b>	<b>Name of the faculty- 1) Monalisa Maharana</b> <b>2) Pradhyumna Kumar Sahoo</b>	
<b>Subject:</b> <b>Environmental Science</b>	<b>Sub code:</b> <b>TH5</b>	<b>No of days /week class allotted: 04</b>	<b>Semester from Date: <u>11-09-2024 to 20-12-2024</u></b> <b>No of weeks: 16</b>	
<b>Month</b>	<b>Week</b>	<b>periods</b>	<b>Theory topics</b>	<b>Remarks</b>
<b>September</b>	1 <sup>st</sup>	3P	Ecosystem-Structure of ecosystem, Components of ecosystem, food chain and food web	
	2 <sup>nd</sup>	4P	Types of ecosystems, aquatic (Lotic and Lentic) and terrestrial ecosystem	
	3 <sup>rd</sup>	4P	Biogeochemical cycles (Carbon, Nitrogen, Sulphur, Phosphorous cycle)	
	4 <sup>th</sup>	1P	Global Warming- Definition Causes and effects, Greenhouse effect, ozone layer depletion.	
<b>October</b>	1 <sup>st</sup>	3P	Definition of pollution and pollutant, natural and man-made sources of air pollutant.	
<b>Puja Holidays</b>				
	2 <sup>nd</sup>	4P	Types of air pollutants, particulate pollutants Effects and control of air pollutants (Bag filter, Cyclone separator, Electrostatic Precipitator)	
	3 <sup>rd</sup>	4P	Gaseous Pollution control: Absorber, Catalytic converter, Effect of air	

			pollutant due to Refrigerants, I.C. Boilers	
	4 <sup>th</sup>	2P	Noise pollution: Sources, Measurements, Effects of noise pollution. Noise pollution (Regulation and Control Rules), 2000	
<b>November</b>	1 <sup>st</sup>	1P	Sources of water pollution, Types of water pollutants	
	2 <sup>nd</sup>	4P	Characteristics of water pollutants: Waste water treatment: Primary methods, secondary methods, tertiary methods	
	3 <sup>rd</sup>	3P	Causes, Effects, and Preventive measures of soil pollution. Soil pollution causes: Excessive use of fertilizers, pesticides and insecticides, irrigation, E-waste.	
	4 <sup>th</sup>	4P	Solar energy, flat plate collector and it's theory Importance of coating. Advanced collector. Solar pond. Solar water heater, Solar dryer and solar stills.	
	5 <sup>th</sup>	4P	Biomass. Wind energy. New energy resources.	
<b>December</b>	1 <sup>st</sup>	4P	Solid waste generation, Sources and characteristics of Municipal solid waste, E-waste, bio-medical waste. Metallic and non-metallic wastes.	
	2 <sup>nd</sup>	4P	Collection and disposal: MSW (3R principles, energy recovery), Air quality act 2004, Air pollution control act 1981, and water pollution control act 1996. Structure and role of central and state pollution control board.	
	3 <sup>rd</sup>	4P	Concept of carbon credit, carbon footprint. Environmental management in fabrication industry.	

			ISO14000: implementation in industries and benefits.	
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**Text Books: 1. Environmental Science (English) by Dr Subrat Roy.**

**2. S.C Sharma & M.P. Poonia, Environmental Studies, Khana Publishing House, New Delhi**

**Reference Books:**

- 1. O.P. Gupta, Elements of Environmental Pollution Control, Khana Publishing House, New Delhi**
- 2. Rao, M.N. Rao, H.V.N, Air Pollution, Tata Mc-Graw Hill Publication, New Delhi, 1988**
- 3. Keshav Kant, Air Pollution & control, Khanna Publishing House, New Delhi (Edition 2018)**

Signature of the Faculty

Date: