

LESSON PLAN

SUBJECT: ENVIRONMENTAL SCIENCE
SEM-1st



PREPARED BY,
SUSHREETA BEHERA
LECTURER IN CHEMISTRY

DEPARTMENT OF MATH AND SCIENCE
GOVERNMENT POLYTECHNIC, BARGARH

LESSON PLAN

SUB: ENVIRONMENTAL SCIENCE

Name of the Teaching Faculty:
Sushreeta Behera, Lecturer in Chemistry

Semester:1st
Class allotted:60

Class	Theory Topics
1	ECOSYSTEM: INTRODUCTION, TYPES OF ECOSYSTEM (NATURAL AND ARTIFICIAL ECOSYSTEM): AQUATIC (LENTIC AND LOTIC) AND TERRESTRIAL ECOSYSTEM
2	STRUCTURE OF ECOSYSTEM (BIOTIC & ABIOTIC COMPONENTS)
3	FOOD CHAIN
4	FOOD WEB AND CARBON CYCLE
5	NITROGEN CYCLE
6	SULPHUR & PHOSPHORUS CYCLE
7	GLOBAL WARMING :CAUSES, EFFECTS, PROCESS, GREEN HOUSE EFFECT
8	OZONE LAYER DEPLETION
9	SEMINAR/ PAPER PRESENTATION BY STUDENTS
10	SEMINAR/ PAPER PRESENTATION BY STUDENTS
11	QUIZ & DISCUSSION OF ASSIGNMENT QUESTIONS
12	AIR AND NOISE POLLUTION: DEFINITION OF POLLUTION AND IT'S TYPE. POLLUTANTS & IT'S TYPE
13	NATURAL AND MANMADE SOURCES OF AIR POLLUTION. AIR POLLUTANTS(PRIMARY & SECONDARY)
14	PARTICULATE POLLUTANTS & IT'S EFFECT. EFFECTS OF AIR POLLUTION DUE TO REFRIGERANTS, I.C., BOILER.
15	CONTROL MEASURES: BAG FILTERS & IT'S TYPE. SHAKER BAG FILTERS
16	REVERSE AIR BAG FILTERS & PULSE JET TYPE BAG FILTERS
17	CYCLONE SEPARATOR & ELECTROSTATIC PRECIPITATOR
18	GASEOUS POLLUTION CONTROL: ABSORBER &CATALYTIC CONVERTER. QUIZ ON AIR POLLUTION
19	NOISE POLLUTION: SOURCES OF POLLUTION, MEASUREMENT OF POLLUTION LEVEL
20	EFFECTS OF NOISE POLLUTION, NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000
21	SEMINAR/PAPER PRESENTATION BY STUDENTS
22	SEMINAR/PAPER PRESENTATION BY STUDENTS

23	QUIZ & DISCUSSION OF ASSIGNMENT QUESTIONS
24	WATER POLLUTION: SOURCES OF WATER POLLUTION, TYPES OF WATER POLLUTANTS
25	CHARACTERISTICS OF WATER POLLUTANTS: TURBIDITY, PH, TOTAL SUSPENDED SOLIDS, TOTAL SOLIDS .BOD AND COD: DEFINITION, CALCULATION
26	WASTE WATER TREATMENT: PRIMARY METHODS: SEDIMENTATION, FROTH FLOATATION
27	SECONDARY METHODS: ACTIVATED SLUDGE TREATMENT, TRICKLING FILTER, BIOREACTOR
28	TERTIARY METHOD: MEMBRANE SEPARATION TECHNOLOGY, RO (REVERSE OSMOSIS).
29	SOIL POLLUTION: CAUSES-EXCESSIVE USE OF FERTILIZERS, PESTICIDES AND INSECTICIDES, IRRIGATION, E-WASTE
30	EFFECTS AND PREVENTIVE MEASURES OF SOIL POLLUTION
31	PRESENTATION OF CASE STUDY BY STUDENTS
32	SEMINAR BY STUDENTS
33	QUIZ & DISCUSSION OF ASSIGNMENT QUESTIONS
34	RENEWABLE SOURCES OF ENERGY: SOLAR ENERGY: BASICS OF SOLAR ENERGY. FLAT PLATE COLLECTOR (LIQUID & AIR). THEORY OF FLAT PLATE COLLECTOR
35	IMPORTANCE OF COATING. ADVANCED COLLECTOR. SOLAR POND & SOLAR DRYER
36	SOLAR WATER HEATER & SOLAR STILL
37	BIOMASS & THERMAL CHARACTERISTICS OF BIOMASS AS FUEL.
38	ANAEROBIC DIGESTION. BIOGAS PRODUCTION MECHANISM.
39	UTILIZATION AND STORAGE OF BIOGAS.
40	WIND ENERGY: CURRENT STATUS AND FUTURE PROSPECTS OF WIND ENERGY. WIND ENERGY IN INDIA
41	ENVIRONMENTAL BENEFITS AND PROBLEM OF WIND ENERGY NEW ENERGY SOURCES: NEED OF NEW SOURCES. DIFFERENT TYPES NEW ENERGY SOURCES
42	APPLICATIONS OF HYDROGEN ENERGY AND OCEAN ENERGY RESOURCES, TIDAL ENERGY CONVERSION.
43	CONCEPT, ORIGIN & POWER PLANTS OF GEOTHERMAL ENERGY
44	PAPER PRESENTATION & SEMINAR BY STUDENTS
45	PAPER PRESENTATION & SEMINAR BY STUDENTS
46	QUIZ & DISCUSSION OF ASSIGNMENT QUESTIONS
47	INTRODUCTION, SOLID WASTE GENERATION: SOURCES AND CHARACTERISTICS OF MUNICIPAL SOLID WASTE. BIODEGRADABLE & NON-BIODEGRADABLE SOLID WASTE
48	SOURCES AND CHARACTERISTICS OF: E- WASTE, BIO- MEDICAL WASTE.
49	METALLIC WASTES AND NON-METALLIC WASTES (LUBRICANTS, PLASTICS, RUBBER) FROM INDUSTRIES.
50	COLLECTION AND DISPOSAL: MSW (3R, PRINCIPLES, ENERGY RECOVER)
51	SANITARY LANDFILL, HAZARDOUS WASTE & ITS DISPOSAL
52	AIR QUALITY ACT 2004, AIR POLLUTION CONTROL ACT 1981
53	WATER POLLUTION AND CONTROL ACT 1974
54	STRUCTURE AND ROLE OF CENTRAL AND STATE POLLUTION CONTROL BOARD.
55	CONCEPT OF CARBON CREDIT, CARBON FOOTPRINT. ENVIRONMENTAL MANAGEMENT IN FABRICATION INDUSTRY.
56	ISO14000: IMPLEMENTATION IN INDUSTRIES, BENEFITS.
57	PAPER PRESENTATION & SEMINAR BY STUDENTS
58	PAPER PRESENTATION & SEMINAR BY STUDENTS
59	DISCUSSION OF QUESTION BANK
60	QUIZ & DISCUSSION OF ASSIGNMENT QUESTIONS

Sushanta Behera
21/4/25
Signature of the faculty

Prashant
21/04/2025
Signature of the H.O.D