

LESSON PLAN

SUBJECT: ENVIRONMENTAL SCIENCE
SEM-1st



PREPARED BY,
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GOVERNMENT POLYTECHNIC, BARGARH

LESSON PLAN

SUB: ENVIRONMENTAL SCIENCE

Name of the Teaching Faculty:
Sushreeta Behera, Lect. in Chemistry

Sem-1st Session-2024-25
Semester from date: 16/08/2024 to date:10/12/2024

Class	Theory Topics
1	ECOSYSTEM: INTRODUCTION, STRUCTURE OF ECOSYSTEM, BIOTIC & ABIOTIC COMPONENTS
2	FOOD CHAIN AND FOOD WEB
3	AQUATIC (LENTIC AND LOTIC) ECOSYSTEM
4	TERRESTRIAL ECOSYSTEM
5	CARBON & NITROGEN CYCLE
6	SULPHUR & PHOSPHORUS CYCLE. OZONE LAYER DEPLETION
7	GLOBAL WARMING -CAUSES, EFFECTS, PROCESS, GREEN HOUSE EFFECT
8	SEMINAR/ PAPER PRESENTATION BY STUDENTS
9	SEMINAR/ PAPER PRESENTATION BY STUDENTS
10	QUIZ & DISCUSSION OF ASSIGNMENT QUESTIONS
11	AIR AND NOISE POLLUTION:
12	DEFINITION OF POLLUTION, TYPES OF POLLUTION, POLLUTANTS & IT'S TYPE
13	NATURAL AND MANMADE SOURCES OF AIR POLLUTION. AIR POLLUTANTS
14	PARTICULATE POLLUTANTS & IT'S EFFECT. CONTROL MEASURES: BAG FILTERS & IT'S TYPE. SHAKER BAG FILTERS
15	REVERSE AIR BAG FILTERS & PULSE JET TYPE BAG FILTERS
16	CYCLONE SEPARATOR & ELECTROSTATIC PRECIPITATOR
17	GASEOUS POLLUTION CONTROL: ABSORBER, CATALYTIC CONVERTER
18	EFFECTS OF AIR POLLUTION DUE TO REFRIGERANTS, I.C., BOILER. 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. UTILIZATION AND STORAGE OF BIOGAS.
39	WIND ENERGY: CURRENT STATUS AND FUTURE PROSPECTS OF WIND ENERGY. WIND ENERGY IN INDIA.
40	ENVIRONMENTAL BENEFITS AND PROBLEM OF WIND ENERGY
41	NEW ENERGY SOURCES: NEED OF NEW SOURCES. DIFFERENT TYPES NEW ENERGY SOURCES. APPLICATIONS OF HYDROGEN ENERGY
42	APPLICATIONS OF OCEAN ENERGY RESOURCES, TIDAL ENERGY CONVERSION. CONCEPT, ORIGIN OF GEOTHERMAL ENERGY
43	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 1996
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	PAPER PRESENTATION & SEMINAR BY STUDENTS
60	QUIZ & DISCUSSION OF ASSIGNMENT QUESTIONS

Signature of the faculty

Signature of the H.O.D