

**UTKALMANI GOPABANDHU INSTITUTE OF
ENGINEERING, ROURKELA**



LESSON PLAN

DEPARTMENT OF CHEMICAL ENGINEERING

MODULE-I

LESSON PLAN



SUBJECT CODE : TH-5

NAME : EVS

BRANCH : CH

SEMESTER : Diploma-III

CREDIT POINTS : 4

NUMBER OF MODULES : 4

CLASSES REQUIRED : 60

PRE-REQUISITE : To gather adequate knowledge of different pollutants, their sources and shall be aware of solid waste management systems and hazardous waste and their effects.

Syllabus –

MODULE-I

The Multidisciplinary nature of environmental studies:

1.1 Definition, scope and importance. 1.2 Need for public awareness.

Objectives:

To understand the definitions of environmental studies, scope and importance & need for public awareness

Lecture no	Topics to be covered	PRIMARY REFERENCE (BOOKS/NOTES)
1	Definition, scope of environmental studies	T1, R1
2	Multidisciplinary nature of environmental studies	T1
3	Need for public awareness for environment	T1,T2
4	Important question discussion and revision	R1

MODULE-II

Natural Resources:

Renewable and non-renewable resources:

2.1 Natural resources and associated problems. 2.1.1. Forest resources: Use and over-exploitation, deforestation, case studies, Timber extraction mining, dams and their effects on forests and tribal people. 2.1.2. Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dam's benefits and problems. 2.1.3. Mineral Resources: Use and exploitation, environmental effects of extracting and using mineral resources. 2.1.4. Food Resources: World food problems, changes caused by agriculture and over grazing, effects of modern agriculture, fertilizers- pesticides problems, water logging, salinity, . 2.1.5. Energy Resources: Growing energy need, renewable and non-renewable energy sources, use of alternate energy sources, case studies. 2.1.6. Land Resources: Land as a resource, land degradation, man induces landslides, soil erosion, and desertification. 2.2 Role of individual in conservation of natural resources. 2.3 Equitable use of resources for sustainable life styles.

Objectives:

To understand Natural resources, water resources, mineral resources, food& energy resources and their associated problems, uses.

Lecture no	Topics to be covered	PRIMARY REFERENCE (BOOKS/NOTES)
5	Natural resources and associated problems	T1, R1
6	Forest resources: Use and over-exploitation, deforestation, case studies, Timber extraction mining, dams and their effects	T1
7	Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water	T1,T2
8	Mineral Resources: Use and exploitation, environmental effects of extracting and using mineral resources	R1
9	Food Resources: World food problems, changes caused by agriculture and over grazing, effects of modern agriculture, fertilizers- pesticides problems, water logging, salinity.	T1,T2
10	Energy Resources: Growing energy need, renewable and non-renewable energy sources, use of alternate energy sources.	T1,T2
11	Land Resources: Land as a resource, land degradation, man induces landslides, soil erosion, and desertification	T1,T2
12	Role of individual in conservation of natural resources	T1,T2
13	Equitable use of resources for sustainable life styles	T1, R1
14	Important question discussion and revision	T1

MODULE-III

Systems:

3.1. Concept of an eco-system. 3.2. Structure and function of an eco-system. 3.3. Producers, consumers, decomposers. 3.4. Energy flow in the eco systems. 3.5. Ecological succession. 3.6. Food chains, food webs and ecological pyramids. 3.7. Introduction, types, characteristic features, structure and function of the following eco system: 3.8. Forest ecosystem: 3.9. Aquatic eco systems (ponds, streams, lakes, rivers, oceans, estuaries).

Objectives:

To understand Concept, Structure and function of an eco-system, Energy flow, Ecological succession, Food chains, food webs and ecological pyramids, Introduction, types, characteristic features, structure and function of the following eco system.

Lecture no	Topics to be covered	PRIMARY REFERENCE (BOOKS/NOTES)
15	Concept, Structure and function of an eco-system.	T1, R1
16	Difference between Producers, consumers, decomposers	T1
17	Energy flow in the eco systems	T1,T2
18	Ecological succession	R1
19	Food chains, food webs and ecological pyramids	T1,T2
20	Introduction, types, characteristic features, structure and function of the following eco system	T1,T2
21	Forest ecosystem	T1,T2
22	Aquatic eco-systems (ponds, lakes, rivers, oceans, estuaries).	T1,T2

MODULE-IV

Biodiversity and it's Conservation:

4.1. Introduction-Definition: genetics, species and ecosystem diversity. 4.2. Biogeographically classification of India. 4.3. Value of biodiversity: consumptive use, productive use, social ethical, aesthetic and optin values. 4.4. Biodiversity at global, national and local level. 4.5. Threats to biodiversity: Habitats loss, poaching of wild life, man wildlife conflicts.

Objectives:

To understand genetics, species and ecosystem diversity, Bio-geographically classification of India, Value of biodiversity, Biodiversity at global, national and local level, Threats to biodiversity.

Lecture no	Topics to be covered	PRIMARY REFERENCE (BOOKS/NOTES)
23	Introduction-Definition: genetics, species and ecosystem diversity	T1,T2
24	Biogeographically classification of India	T1,T2
25	Value of biodiversity: consumptive use, productive use	T1
26	Value of biodiversity: social ethical, aesthetic and optin values.	R1,T2
27	Biodiversity at global, national and local level	T1
28	Threats to biodiversity: Habitats loss	R1,T2
29	Poaching of wild life, man wildlife conflicts	T1,T2
30	Important question discussion and revision	T1,T2

MODULE-V

Environmental Pollution:

5.1. Definition Causes, effects and control measures of Environmental Pollution. 5.1.1 Air pollution. 5.1.2 Water pollution. 5.1.3 Soil pollution 5.1.4 Marine pollution 5.1.5 Noise pollution. 5.1.6 Thermal pollution 5.1.7 Nuclear hazards. 5.2. Solid waste Management: Causes, effects and control measures of urban and industrial wastes. 5.3. Role of an individual in prevention of pollution. 5.4. Disaster management: Floods, earth quake, cyclone and landslides.

Objectives:

To understand Definition Causes, effects and control measures of Environmental Pollution, Role of an individual in prevention of pollution, Disaster management

Lecture no	Topics to be covered	PRIMARY REFERENCE (BOOKS/NOTES)
31	Definition Causes of Environmental Pollution	T1, R1
32	Air pollution, Causes, effects and control measures	T1
33	Water pollution, Causes, effects and control measures	R1
34	Soil pollution, Causes, effects and control measures	T1
35	Marine pollution, Causes, effects and control measures	R1
36	Noise pollution, Causes, effects and control measures	T1, R1
37	Thermal pollution, Causes, effects and control measures	T1, R1
38	Nuclear hazards, Causes, effects and control measures	T1, T2
39	Solid waste Management: Causes, effects and control measures of urban and industrial wastes	R1, T2
40	Role of an individual in prevention of pollution.	T1
41	Floods, earth quake, cyclone and landslides management	R1, T2
42	Important question discussion and revision	T1, R1

MODULE-VI

Social issues and the Environment:

6.1. Form unsustainable to sustainable development. 6.2. Urban problems related to energy. 6.3. Water conservation, rain water harvesting, water shed management. 6.4. Resettlement and rehabilitation of people; its problems and concern. 6.5. Environmental ethics: issue and possible solutions. 6.6. Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, case studies. 6.7. Air (prevention and control of pollution) Act. 6.8. Water (prevention and control of pollution) Act. 6.9. Public awareness.

Objectives:

To understand Form unsustainable to sustainable development, Urban problems related to energy

Lecture no	Topics to be covered	PRIMARY REFERENCE (BOOKS/NOTES)
43	Form unsustainable to sustainable development	T1, R1
44	Urban problems related to energy	T1, T2
45	Water conservation, rain water harvesting, water shed management	T1
46	Resettlement and rehabilitation of people; its problems and concern	R1, T2
47	Environmental ethics: issue and possible solutions.	R1, T2
48	Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, case studies.	T1, R1
49	Air (prevention and control of pollution) Act	T2

50	Water (prevention and control of pollution) Act	R1,T2
51	Public awareness	T1,T2
52	Important question discussion and revision	T1,T2

MODULE-VII

Human population and the environment:

7.1. Population growth and variation among nations. 7.2. Population explosion- family welfare program. 7.3. Environment and human health. 7.4. Human rights. 7.5. Value education 7.6. Role of information technology in environment and human health.

Objectives:

To understand Population growth and variation among nations, Human rights, Value education, Role of information technology in environment and human health.

Lecture no	Topics to be covered	PRIMARY REFERENCE (BOOKS/NOTES)
53	Population growth and variation among nations.	T1, R1
54	Population explosion- family welfare program	T1,T2
55	Environment and human health.	R1.T2
56	Human rights.	R1,T2
57	Value education	T1,R1
58	Role of information technology in environment and human health	R1
59	Revision	T1,T2
60	Doubt clearing and quiz	T1,R1

Course Delivery Plan

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BOOKS FOR REFERENCE:

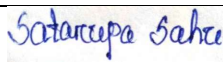

TEXT BOOKS

T1: Environmental Engineering by V.M.Domkundwar, Dhanpat Rai & Co Publication

T2: Fundamental concepts in Environmental Studies by D.D.Mishra, S.Chand & Co-Ltd

REFERENCE

R1: Text book of Environmental Studies by K.Raghavan Nambiar , SCITECH Publication Pvt. Ltd.

	Prepared by	Approved by
Signature		
Name	SATARUPA SAHU	B.K.GANTAYAT
Designation	Sr.Lecturer	HOD, Chemical.

