

LESSON PLAN

Name of the Subject: ENVIRONMENTAL SCIENCES (14BT3HS01)

Class & Semester: II B.Tech I Sem

Name of the faculty Member:

S. No.	Topic	No. of periods	Book(s) followed	Topics for self study
UNIT – I: MULTIDISCIPLINARY NATURE OF ENVIRONMENT AND NATURAL RESOURCES				
1.	Definition, scope and importance of multidisciplinary nature of environment	1	T1	a) Land resources-land degradation, types soil erosion and desertification b) Geothermal energy c) Case studies of Chipko movement, Narmada Bachao Andolan and Tehri dam
2.	Segments of environment-lithosphere, hydrosphere, atmosphere and biosphere	1	T1	
3.	Need for public awareness	1	T1	
4.	Introduction to renewable and Non-renewable resources	1	T1	
5.	Forest resources: use and over exploitation, deforestation-causes, effects and remedies, case studies	1	T1	
6.	Water resources-use and over utilization of surface & ground water, conflicts over water-benefits and problems of large dams, case studies	1	T1	
7.	Mineral resources- mining, adverse effects, case studies	1	T1	
8.	Food resources-world food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problem, water logging and salinity, case studies	2	T1	
9.	Energy resources-growing needs, renewable energy resources–solar, wind, hydropower, hydrogen fuel and non-renewable energy resources-coal, natural gas, nuclear energy	1	T1	
10.	Role of an individual in conservation of natural resource and equitable use of resources for sustainable lifestyles.	1	T1	
Total periods required:		11		
UNIT – II: ECOSYSTEMS AND BIODIVERSITY				
11.	Definition and concept of an Ecosystem, structure and function of an ecosystem-producers, consumers and decomposers	1	T1	a) Grass land ecosystem and Mangrove ecosystem
12.	Food chains, food webs and ecological pyramids	1	T1	
13.	Characteristic features, structure and functions of forest ecosystem, desert ecosystem, aquatic ecosystem-ponds, lakes and oceans	1	T1	
14.	Energy flow in the ecosystem	1	T1	b) Biogeochemical cycles– carbon, nitrogen,
15.	Ecological succession	1	T1	
16.	Definition, concept and value of Biodiversity	1	T1	

17.	Role of biodiversity in addressing new millennium challenges	1	T1	phosphate and sulphur cycles c) Aquatic ecosystem-streams and rivers ecosystems
18.	Hot spots of biodiversity	1	T1	
19.	Threats to biodiversity–habitat loss, poaching of wildlife, man-wild life conflicts	1	T1	
20.	Endemic, endangered and extinct species of India Conservation of biodiversity–in-situ and ex-situ	1	T1	d) Biodiversity at global, national and local level e) Case study of Kolleru lake ecosystem
Total periods required:		10		
UNIT -III: ENVIRONMENTAL POLLUTION AND CONTROL				
21.	Definition, causes, adverse effects and control measures of air pollution	1	T1	a) Marine pollution
22.	Definition, causes, adverse effects and control measures of water pollution and soil pollution	1	T1	b) Role of individuals in prevention of pollution
23.	Definition, causes, adverse effects and control measures of noise pollution	1	T1	
24.	Definition, causes, adverse effects and control measures of thermal pollution	1	T1	
25.	Definition, causes, adverse effects and control measures of nuclear pollution	1	T1	c) Cyclones and landslides
26.	Solid waste management–causes, effects and control measures of urban and industrial wastes.	2	T1	d) Case study of industrialization of Pattancheru
27.	Hazards and disaster management–floods, earthquakes, tsunamis-case studies	1	T1	
Total periods required:		08		
UNIT – IV: SOCIAL ISSUES AND THE ENVIRONMENT				
28.	From unsustainable to sustainable development, urban problems related to energy	1	T1	a) Water conservation-rain water harvesting and watershed management
29.	Environmental ethics-issues and possible solutions, global warming, acid rain	2	T1	b) Resettlement and rehabilitation of people-its problems and concerns
30.	Ozone layer depletion, nuclear accidents and case studies	1	T1	
31.	Wasteland reclamation, consumerism and waste products	1	T1	
32.	Environment protection act, air (prevention and control of pollution) act	1	T1	c) Holocaust, Climate change

33.	Water (prevention and control of pollution) act, wildlife protection act, forest conservation act	1	T1	d) Case study of Taj Mahal
34.	Issues involved in enforcement of environmental legislation, public environmental awareness	1	T1	
Total periods required:		08		
UNIT – V: HUMAN POPULATION AND THE ENVIRONMENT				
35.	Population growth, population characteristics and variation among nations, population explosion	1	T1	a) Hepatitis-B Virus
36.	Family welfare programme, environment and human health, human rights, value education	1	T1	b) Case study of fluorosis in Andhra Pradesh
37.	HIV/AIDS, women and child welfare	2	T1	c) Study of common plants, insects and birds (submission of a written report)
38.	Role of information technology in environment and human health, case studies	1	T1	
39.	Field work: Visit to a local area to document environmental assets-pond/forest/grassland/hill/mountain or assignment/seminar	3	T1	d) Study of river and hill slopes ecosystems (submission of a written report)
Total periods required:		8		
Grand total periods required:		45		

TEXT BOOKS:

1. A.Kaushik and C.P. Kaushik, “**Environmental Studies**”, New Age International (P) Ltd Publications, 4th Edition, 2014.
2. Erach Barucha, “**Environmental Studies**”, Orient Blackswan, 2nd Edition, 2013.

REFERENCE BOOKS:

1. R. Rajagopalan, “**Environmental Studies**”, Oxford University Press, 2nd Edition, 2011.
2. Benny Joseph, “**Environmental Studies**”, Tata McGraw-Hill, 2nd Edition, 2009.
3. Dr. B S Chauhan, “**Environmental Studies**”, University Science Press, 1st Edition, 2008.
4. M. Anji Reddy, “**Textbook of Environmental Sciences and Technology**”, BS Publications, 2007.
5. Larry W Canter, “**Environmental Impact Assessment**”, McGraw-Hill Education, 2nd edition, 1996.