

18BP021 ENVIRONMENTAL SCIENCES

Hours Per Week :

L	T	P	CP	CL
3	-	-	-	3

Total Hours :

L	T	P	WA/RA	SSH/SHS	CS	SA	S	BS
30	-	30						

SCOPE:

Environmental Sciences is the scientific study of the environmental system and the status of its inherent or induced changes on organisms. It includes not only the study of physical and biological characters of the environment but also the social and cultural factors and the impact of man on environment.

COURSE OUTCOMES:

Upon completion of the course, the student will be able to achieve the following outcomes:

COs	Course Outcomes	POs
1	Understand the importance of Environmental education and conservation of natural resources.	7
2	Understand the importance of ecosystems and biodiversity.	7
3	Apply the environmental science knowledge on solid waste management, disaster management and EIA process.	7
4	Motivate learner to participate in environment protection and environment improvement	7
5	Strive to attain harmony with Nature	7

UNIT-I**10HOURS**

The Multidisciplinary nature of environmental studies Natural Resources

RENEWABLE AND NON-RENEWABLE RESOURCES: Natural resources and associated problems

a) Forest resources; b) Water resources; c) Mineral resources; d) Food resources; e) Energy resources; f) Land resources: Role of an individual in conservation of natural resources.

UNIT-II**10HOURS**

ECOSYSTEMS: Concept of an ecosystem; Structure and function of an ecosystem; Introduction, types, characteristic features, structure and function of the ecosystems: Forest ecosystem; Grassland ecosystem; Desert ecosystem; Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

UNIT-III**10HOURS**

ENVIRONMENTAL POLLUTION: Air pollution; Water pollution; Soil pollution Air pollution, Water pollution, Noise pollution, Thermal pollution, Soil pollution Control, Pollution case studies, Nuclear hazards and human health risks, Solid waste Management: control measures of urban and industrial wastes Remote sensing / GIS: Introduction, definitions, applications of the remote sensing, Green technology for Sustainable development.

UNIT - IV

ENVIRONMENTAL POLICIES AND PRACTICES: Climate change, Global warming, Acid rain, Ozone layer depletion and impacts on human communities and agriculture. Environmental laws: Wildlife Protection Act – Water (pollution prevention and control) Act - Forest Conservation Act - Air (pollution prevention and control) Act. –Environmental Protection Act, International agreements: Montreal and Kyoto protocols and Convention on Biological Diversity, Nature reserves, tribal populations and rights, and human wild life conflicts in Indian context, EIA: Introduction, definition of E.I.A and E.I.S – scope and objectives – Importance of E.I.A in proposed Projects / Industry / Developmental activity.

UNIT- V**HUMAN COMMUNITIES AND THE ENVIRONMENT:**

HUMAN POPULATION GROWTH: Impacts on environment, human health and welfare -Resettlement and Rehabilitation of project affected persons: Case Studies. -Disaster Management: floods, earthquake, landslides and cyclones -Environmental movements: Chick movement, Silent valley, Bishops of Rajasthan-Environmental ethics: Role of Indian and other religions and cultures in environmental conservation: Environmental communication and Public awareness, case studies (C.N.G Vehicles in Delhi)

FIELD WORK/ENVIRONMENTAL VISIT: Visit to a local area to document environmental assets – river/ forest/ grassland / hill /mountain: Visit to a local polluted site - Study of local environment - common plants, insects, birds - Study of simple ecosystems –pond, river, hill slopes etc - Visit to industries/ water treatment plants/effluent treatment plants.

RECOMMENDED BOOKS (LATEST EDITION):

1. Y.K. Sing, Environmental Science, New Age International Put, Publishers, Bangalore.
2. Agawam, K.C. 2001 Environmental Biology, Indi Publ. Ltd.Bikaner.
3. Barouche Erich, The Biodiversity of India, Main Publishing Pvt. Ltd., Ahmadabad – 380 013,India.
4. Brunner R.C., 1989, Hazardous Waste Incineration, McGraw Hill Inc.480p
5. Clark R.S., Marine Pollution, Clander son Press Oxford
6. Cunningham, W.P. Cooper, T.H. Gorham, E & Hepworth, M.T. 2001, Environmental Encyclopedia, Jiao Publ. House, Mumbai,1196p.
7. De A.K., Environmental Chemistry, Wiley Eastern Ltd.
8. Down of Earth, Centre for Science and Environment.

