

Course Number and Name	
BCE306-ENVIRONMENTAL STUDIES	
Credits and Contact Hours	
3 & 45	
Course Coordinator's Name	
Ms ASWATHY	
Text Books and References	
<p>Text Books:</p> <ol style="list-style-type: none"> Gilbert M.Masters, "Introduction to Environmental Engineering and Science", 2nd Edition, Pearson Education, 2004. Benny Joseph, Environmental Science and Engineering", Tata Mc Graw-Hill, New Delhi, 2006. <p>References:</p> <ol style="list-style-type: none"> R.K.Trivedi, "Handbook of Environmental Laws, Rules, Guidelines, Compliances and Standard", Vol.I and II, Enviro Media. Cunningham, W.P.Cooper, T.H. Gorhani, "Environmental Encyclopedia", Jaico Publ.House, Mumbai, 2001. Dharmendra S. Sengar, "Environmental law", Prentice Hall of India PVT LTD, New Delhi, 2007. Rajagopalan, R, "Environmental Studies-From Crisis to Cure", Oxford University Press 2005 http://eng.mft.info/uploadedfiles/gfiles/c8e31c9e52d84c3.pdf 	
Course Description	
<ul style="list-style-type: none"> To understand what constitutes the environment, what are precious resources in the environment. Ways of conservation of resource The role of human being in maintaining a clean environment and useful environment for the future generations. How to maintain ecological balance and to preserve bio diversity 	
Prerequisites	Co-requisites
Engineering Chemistry – I & II	NIL
required, elective, or selected elective (as per Table 5-1)	
required	
Course Outcomes (COs)	
CO1 :Play a important role in transferring a healthy environment for future generations	
CO2 :To study the interrelationship between living organism and environment	
CO3 :Discuss contemporary issues that results in environmental degradation and would attempt to provide solutions to overcome those problems	
CO4 :Ability to consider issues of environment and sustainable development in his personal and professional undertakings	
CO5 :Highlight the importance of ecosystem and biodiversity	
CO6 :Paraphrase the importance of conservation of resources.	

Student Outcomes (SOs) from Criterion 3 covered by this Course

COs/SOs	a	b	c	d	e	f	g	h	i	j	k
CO1						M	M			M	
CO2	L					M	H			H	
CO3		H					H				
CO4							M			M	
CO5	M	M					H				
CO6						M	H			H	

List of Topics Covered
UNIT-I
9
THE MULTI-DISCIPLINARY NATURE OF ENVIRONMENTAL STUDIES

Definition, scope and importance, Need for public awareness.

NATURAL RESOURCES:
RENEWABLE AND NON-RENEWABLE RESOURCES

Nature resources and associated problems

- a) Forest resources: Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effect on forests and tribal people.
- b) Water resources, use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems.
- c) Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies.
- d) Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.
- e) Energy resources; Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources, case studies
- f) Land resources: Land as resources, Land degradation, man induced landslides, soil erosion and desertification
 - Role of an individual in conservation of natural resources,
 Equitable use of resources for sustainable lifestyles.

UNIT -II
8
ECOSYSTEMS

Concepts of an ecosystem, Structure and function of an ecosystem, producers, consumers and decomposers, Energy flow in the ecosystem, Ecological succession, Food chains, food webs and ecological pyramids, introduction, types, characteristic features, structure and function of the following ecosystem: Forest ecosystem, Grassland ecosystem, Desert ecosystem, Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

Water conservation, rain water harvesting, watershed management, Resettlement and rehabilitation - Ethics : Issues and possible Solutions, Climate change, global warming, acid rain, ozone layer depletion.

UNIT -III
7
BIODIVERSITY AND ITS CONSERVATION

Introduction Definition genetic, species and ecosystem diversity, Bio-geographically classification of India, Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values, Biodiversity at global, national and local levels. India as a mega-diversity nation, Hot-spots of biodiversity. Threats to biodiversity, habitat, poaching of wildlife, man-wildlife conflicts, Endangered and endemic species of India, Conservation biodiversity In-situ and Ex-situ conservation of biodiversity.

ENVIRONMENTAL POLLUTION**7**

Definition, Causes, effects and control measures of:- Air pollution, Water pollution, Soil pollution, Marine pollution, Noise pollution, Thermal pollution, Nuclear hazards, Solids waste Management: Causes, effects and control measures of urban and Industrial wastes Role of an individual in prevention of pollution, Pollution case studies. Disaster management: floods, earthquake, cyclone and landslides.

UNIT- IV**SOCIAL ISSUES AND THE ENVIRONMENT****8**

From Unsustainable to Sustainable development, urban problems related to energy, Water conservation rain water harvesting, watershed management, Resettlement and rehabilitation of people its problems and concerns Case studies. Environmental ethics: Issues and possible solutions, Climate change, global warming, acid rain, ozone layer depletion nuclear accident and holocaust, Case studies, Wasteland reclamation, Environment Protection Act, Air {Prevention and Control of pollution} Act, Water (prevention and control of Pollution) Act, Wildlife protection Act, Forest Conservation Act, Issues involved in enforcement of environmental legislation, Public awareness".

Fireworks and its impact on the Environment – Chemicals used in Fireworks – (Fuel –oxidizing Agent – Reducing Agent –Toxic Materials – Fuel –Binder- Regulator) – Harmful nature of ingredients – chemical effects on health due to inhaling fumes – Noise produced by fire crackers – Noise pollution – Noise level standards for fire crackers – Intensity of sound – Impact on hearing – Safety measures.

UNIT- V**HUMAN POPULATION AND THE ENVIRONMENT****6**

Population growth, variation among nations, population explosion- Family Welfare programme, Environment and human health, Human Rights, Value Education, HIV / AIDS, Women and Child Welfare, Role of Information Technology in Environment and human health. Case Studies.