

MME201: Environmental Ecology & Biology

Programme: B. Tech. (CSE/ECE/CCE/MME)

Year: 2nd Semester: 1st Semester

Course: Environment

Credits: 3

Hours: 40 hours

Course Context and Overview (100 words):

Through this course students will be able to recognize major concepts in environmental sciences. This course deals with the understanding of energy resource, natural components of environmental media (air, water, soil), pollution, application of the fundamental principles of chemistry to control the effects of pollution and waste management, health and safety concepts. This course seeks to create a learning environment in which our students would be made aware of scientific issues in the larger social context.

Prerequisites Courses:

NIL

Course outcomes (COs):

On completion of this course, the students will have the ability to:
CO1: develop an awareness of the impact that environmental science has had on society at large
CO2 : articulate an in-depth, interdisciplinary understanding of environmental sustainability issues
CO3: understand the natural environment and its relationships with human activities

Course Topics:

Topics	Lecture Hours	
UNIT - I		
1. The Multidisciplinary Nature of Environmental Studies :		
1.1 Definition	1	3
1.2 scope and importance		
1.3 Need for public awareness.	2	

UNIT - II		
2. Natural Resources Renewable and Non-renewable Resources:		
2.1 Natural resources and associated problems	2	4
2.2 Role of an individual in conservation of natural resources	2	

UNIT - III		
3. Environmental Pollution :		
3.1 Definition; Causes, effects and control measures of Air pollution	3	15
3.2 Water pollution	4	
3.3 Soil pollution	2	
3.4 Nuclear hazards	2	
3.5 Solid waste management: Causes, effects and control measures of urban and industrial wastes.	4	
UNIT - IV		
Social Issues and the Environment : Ecosystems :		
4.1 Concept of an ecosystem; Structure and function of an ecosystem; Producers, consumers and decomposers; Energy flow in the ecosystem; Food chains, food webs and ecological pyramids; Introduction, types, characteristic features, structure and function of the aquatic ecosystems.	2	4
4.2 Biodiversity and its conservation : Introduction; Biogeographical classification of India; Value of biodiversity; India as a mega-diversity nation; Threats to biodiversity - habitat loss, poaching of wildlife, man-wildlife conflicts; Endangered and endemic species of India; Conservation of biodiversity.	2	
UNIT - V		
5. Social Issues and the Environment :		
5.1 From unsustainable to sustainable development	2	7
5.2 Urban problems related to energy	2	
5.3 Water conservation, rain water harvesting, watershed management	2	
5.4 Environmental ethics: Issues and possible solutions. Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust	3	
5.5 Environment Protection Act	1	
5.6 Public awareness		
UNIT-VI		
6. Human Population and the Environment :		
6.1 Population growth, variation among nations	1	7
6.2 Environment and human health	1	
6.3 Human rights	1	
6.4 Value education; HIV/AIDS	1	
6.5 Women and Child Welfare	2	
6.6 Role of Information Technology in environment and human health	1	

Textbook references (IEEE format):

1. **Environmental Science & Engineering** by Benny Joseph, Tata McGraw-Hill Education, 01-Mar-2005.
2. **Environmental Chemistry** By A K De, New Age International, 2003.
3. **Textbook of Environmental studies** by Erach Bharucha, University Press (India) Pvt. Ltd.

References Books:

1. **Introduction to Environmental Chemistry** by S. E. Manahan, CRC Press, Boca Raton, FL, 6th edn.

Additional Resources (NPTEL, Web resources etc.):**Evaluation Methods:**

Item	Weightage
Quiz1	20%
Quiz2	
Quiz3	
Quiz4	
Assignment	
Midterm	30%
Final Examination	50%

Prepared By:**Last Update: 27/03/2015**