

## MME 201: Environment, Ecology & Biology

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

Year: 1<sup>st</sup>

Semester: 2<sup>nd</sup>

Course: Core

Credits: 3

Hours : 40

### 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 importance of energy resource, natural components of environmental media (air, water, soil), pollution, concept and principles of sustainable development, application of the fundamental principles of chemistry to control the effects of pollution and waste management, significance and protection of biodiversity. This course seeks to create a learning environment in which our students would be made aware of importance of environmental studies and environmental 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 regarding the importance of the environment and various form of environmental degradation.

CO2 : articulate an in-depth understanding of environmental sustainability issues.

CO3: understand the fundamental physical and biological principles that govern natural processes and international conventions and protocols for the protection of environment.

### Course Topics:

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

<b>UNIT - II</b>		
<b>2. Natural Resources Renewable and Non-renewable Resources:</b>		4
2.1 Natural resources and associated problems	2	
2.2 Role of an individual in conservation of natural resources	2	
<b>UNIT - III</b>		
<b>3. Environmental Pollution :</b>		
3.1 Definition; Causes, effects and control measures of Air pollution	3	11
3.2 Water pollution	3	
3.3 Soil pollution	1	
3.4 Nuclear hazards	1	
3.5 Solid waste management: Causes, effects and control measures of urban and industrial wastes.	3	
<b>UNIT - IV</b>		
<b>Social Issues and the Environment : Ecosystems :</b>		
4.1 Concept of an ecosystem; Structure and function of an ecosystem; Producers, consumers and decomposers; Energy flow in the ecosystem; Introduction, types, characteristic features, structure and function of the aquatic ecosystems. Impact of globalization on ecology and environment.	4	8
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.	4	
<b>UNIT - V</b>		
<b>5. Social Issues and the Environment :</b>		
5.1 From unsustainable to sustainable development	2	11
5.2 Urban problems related to energy	2	
5.3 Impact of development on environment	2	
5.4 Water conservation, rain water harvesting, watershed management	2	
5.5 Environmental ethics: Issues and possible solutions. Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust	2	
5.6 Environment Protection Act	1	
5.7 Public awareness		
<b>UNIT-VI</b>		
<b>6. Human Population and the Environment :</b>		4

6.1 Population growth, variation among nations	1	
6.2 <b>Environment and human health</b>	1	
6.3 Human rights	1	
6.4 Role of Information Technology in environment and human health	1	

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**Textbook references (IEEE format):**

1. **Textbook of Environmental studies** by Erach Bharucha, University Press (India) Pvt. Ltd.
2. **Environmental Chemistry** By A K De, New Age International, 2003.

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

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**Evaluation Methods:**

Item	Weightage
Quiz1	20%
Quiz2	
Presentation	20%
Project work	10%
Final Examination	50%

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