



# PRAGATI ENGINEERING COLLEGE (Autonomous)

(Approved by AICTE, Permanently Affiliated to JNTUK Kakinada & Accredited by NAAC)  
1-378, ADB Road, Surampalem - 533 437, Near Peddapuram, E.G. Dist., A.P.

## DEPARTMENT OF CHEMISTRY & ENVIRONMENTAL SCIENCES

### BOARD OF STUDIES(R20)Meeting on 25-01-2021

1. Welcome Address by Chairman-BOS
2. Sharing the information regarding the list of subjects for which the syllabus is to be finalized.
4. Ratification of CO-PO-PSO mapping for the proposed subjects.
6. Finalization of textbooks and reference books.
7. Any other item.

### SCHEDULE:Online BOS Meeting

1. Welcome Address by Chairman-BOS regarding common BOS guidelines –  
2:00 PM
2. BOS meeting at R & D Division.



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## Environmental Sciences

(Common to CE, ME, ECE, CSE, CSEDS&AI, IT)

Course Category	Basic Sciences	Course Code	20BE1MC01
Course Type	Theory	L-T-P-C	3-0-0-0
Prerequisites	Basic Knowledge in Environment and protection.	Internal Assessment	0
		Semester End Examination	0
		Total Marks	0

### COURSE OBJECTIVE:

1	To make the students to get awareness on environment, to understand the importance of protecting natural resources, ecosystems for future generations and pollution causes due to the day to day activities of human life to save earth from the inventions by the engineers.
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### COURSE OUTCOMES

Upon successful completion of the course, the student will be able to:

CO1	Gain a higher level of personal involvement and interest in understanding and solving environmental problems.
CO2	Comprehend environmental problems from multiple perspectives with emphasis on human modern lifestyles and developmental activities
CO3	Demonstrate knowledge relating to the biological systems involved in the major global environmental problems of the 21st century
CO4	Recognize the interconnectedness of human dependence on the earth's ecosystems
CO5	Influence their society in proper utilization of goods and services.
CO6	Learn the management of environmental hazards and to mitigate disasters and have a clear understanding of environmental concerns and follow sustainable development practices

### Contribution of Course Outcomes towards achievement of Program Outcomes (1 – Low, 2 - Medium, 3 – High)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	1	0	1	0	0	1	2	0	0	0	1	0	0	0
CO2	0	1	0	0	0	0	1	0	0	0	0	0	0	0
CO3	0	0	0	0	2	0	1	0	0	0	0	0	0	0
CO4	0	0	0	0	1	1	3	0	0	0	0	0	0	0
CO5	0	0	0	0	0	0	3	1	0	0	0	0	0	0



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## Course contents:

### UNIT – I

#### Multidisciplinary nature of Environmental Studies

Definition, Scope and Importance-*International Efforts & Indian Environmentalists*

#### Natural Resources

Forest resources : deforestation – Mining, dams and other effects on forest and tribal people.

Water resources : Use and over utilization of surface and groundwater.

Food resources: World food problems, effects of modern agriculture, fertilizer-pesticide problems.

Energy resources: renewable and nonrenewable energy sources.

Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles.

### LEARNING OUTCOMES:

#### Students will be able to

Articulate the basic structure, functions, and processes of key social systems affecting the environment

Explain why renewable and non-renewable energy resources are important.

Explain how water resources should be used.

### UNIT- II

#### Ecosystems, Biodiversity and its conservation

Definition of Ecosystem and its structure, Functions

Biodiversity Definition-Value of biodiversity, India as a mega-diversity nation, Threats to biodiversity, Conservation of biodiversity, *Endangered and endemic species of India.*

### LEARNING OUTCOMES:

#### Students will be able to

Get a clear picture of structure and functions of ecosystems.

Demonstrate knowledge and understanding of theories in the field of Biodiversity and Systematic in the broad sense:

Explain endangered and endemic species of India.

### UNIT III

#### Environmental Pollution and Solid Waste Management

Definition, Cause, Effects of Air pollution, Water pollution, Noise pollution, Radioactive pollution, Role of an individual in prevention of pollution.

Solid Waste Management: Sources, effects and control measures of urban and industrial waste, *e-waste management*

### LEARNING OUTCOMES

#### Students will be able to

Understand Cause, effects and control measures of air pollution.

Understand solid waste management.



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## UNIT IV

### Social Issues and the Environment

Air (Prevention and Control of Pollution) Act. -Water (Prevention and control of Pollution) Act-  
Issues involved in enforcement of environmental legislation, Rain water harvesting, Global  
Environmental challenges-case studies

### LEARNING OUTCOMES:

Students will be able to

Explain the enforcement of Environmental legislations

Acquire knowledge on various environmental challenges induced due to unplanned anthropogenic activities.

Explain the reasons for global warming

## UNIT-V

### Human population and the Environment

Population growth, Women and child welfare, Role of Information technology in environment and human health. Impact Assessment and its significances, stages of EIA

Field work:

A mini project related to Environmental issues / to visit a local polluted site (Submission of project by every student)

### LEARNING OUTCOMES

Students will have

Explain various types of information technologies

Explain the theories of population explosion

Acquire knowledge on various environmental challenges induced due to unplanned anthropogenic activities

## DEPARTMENT OF ENVIRONMENTAL SCIENCES

TEXT BOOKS	
1.	Environmental Studies for undergraduate courses by ErachBharucha,UGC.
2.	A Textbook of Environmental Studies by Dr.S.AzeemUnnisa,Academic publishing company.
3.	Environmental Studies by P.N. Palanisamy, P. Manikandan, A. Geetha, and K. Manjula Rani; Pearson Education, Chennai
REFERENCE BOOKS	
1.	Text Book of Environmental Studies by Deeshita Dave & P. UdayaBhaskar, Cengage learning.
2.	Glimpses of Environment by K.V.S.G. Murali Krishna Published by Environmental Protection Society, Kakinada, A.P.
3.	Environmental Studies by Benny Joseph, Tata McGraw Hill Co, New Delhi
4.	Environmental Studies by PiyushMalaviya, Pratibha Singh, Anoop Singh: Acme Learning, New Delhi.

**Solid Waste Management: Sources, effects and control measures of urban and industrial waste.**

**LEARNING OUTCOMES** Students will be able to

1. Understand Cause, effects and control measures of air pollution.
2. Explain the enforcement of Environmental legislation
3. Understand solid waste management.

**UNIT-IV: Social Issues and the Environment: Air (Prevention and Control of Pollution) Act 1981. –Water (Prevention and control of Pollution) Act 1974, EPA act 1986 ,Issues involved in enforcement of environmental legislation, Rain water harvesting, Global Environmental challenges climate change and mitigations and Adaptations (Engineering technologies)**

**LEARNING OUTCOMES:**

Students will be able to

1. Explain the enforcement of Environmental legislations
2. Acquire knowledge on various environmental challenges induced due to unplanned anthropogenic activities.

**UNIT-V: Human population and the Environment:**

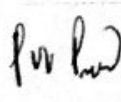
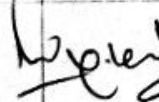
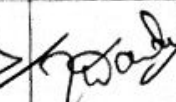
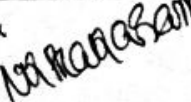
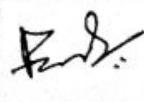

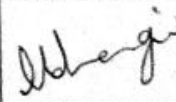
Population growth, Women and child welfare, Role of Information technology in environment and human health Awareness to Environmental Assessment & clearance ,Audit .Environmental Governance in india E-Waste management Rules (Biomedical Waste, Solid Waste) **Field work: A mini project related to Environmental issues / To visit a local polluted site (Submission of project by every student)**

**LEARNING OUTCOMES** Students will have

1. Explain various types of information technologies
2. Explain the theories of population explosion

TEXT BOOKS	
1.	Environmental Studies for undergraduate courses by ErachBharucha,UGC.
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3.	Environmental Studies by P.N. Palanisamy, P. Manikandan, A. Geetha, and K. Manjula Rani; Pearson Education, Chennai
4.	A Textbook EIA Notification 2006(2019)
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2.	Glimpses of Environment by K.V.S.G. Murali Krishna Published by Environmental Protection Society, Kakinada, A.P.
3.	Environmental Studies by Benny Joseph, Tata McGraw Hill Co, New Delhi
WEB RESOURCES	
1.	<b>UNIT-1: MULTI DISPLINARY NATURE OF ENVIRONMENT and NATURAL RESOURCES</b> <a href="http://www.defra.gov.uk/environment/climatechange">http://www.defra.gov.uk/environment/climatechange</a>
2.	<b>UNIT-2: ECOSYSTEM, BIODIVERSITY AND ITS CONSERVATION</b> <a href="http://conbio.net/vl/">http://conbio.net/vl/</a> and <a href="http://www.biodiversitya-z.org/content/biodiversity">www.biodiversitya-z.org/content/biodiversity</a>
3.	<b>UNIT-3: ENVIRONMENTAL POLLUTION</b> <a href="https://www.omicsonline.org/environment-pollution-climate-change.php">https://www.omicsonline.org/environment-pollution-climate-change.php</a> and
4.	<b>UNIT-4: Social Issues and the Environment</b> <a href="http://www.publichealthnotes.com/solid-waste-management/">http://www.publichealthnotes.com/solid-waste-management/</a>
5.	<b>UNIT-5: HUMAN POPULATION AND THE NVIRONMENT</b> <a href="http://IPCC.com">http://IPCC.com</a>

**Signatures of Members of BOS**

University Nominee	Expert	Expert	Industry Personnel	BOS Chairman	Member	Member
						

**Environmental Sciences Revised BOS -R-20 Course Structure allocated subjects as per JNTUK R20**

S.No.	Branch /Year Semester	Nature of Subject	Subjects	L	T	P	C
<b>I Year I Semester(R20)</b>							
1	I-I (Common to ME,CSE DS & AI)	Mandatory course	Environmental sciences	3	--	--	0.0
<b>I year -II Semester(R20)</b>							
1	I-II (Common to CE, ECE,CSE,IT)	Mandatory course	Environmental sciences	3	--	--	0.0

**II year -I Semester (R20)**

1	<b>II-I (EEE)</b>	Mandatory course	Environmental sciences	3	--	--	<b>0.0</b>
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