



# BONAM VENKATA CHALAMAYYA INSTITUTE OF TECHNOLOGY & SCIENCE

(AUTONOMOUS)

(Approved by AICTE, Permanently Affiliated to JNTUK, Kakinada, Accredited by NAAC with 'A' Grade)

## DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

<b>Regulation</b>	<b>BR23</b>				
<b>IIB.TECH I Semester</b>	<b>Course Code: 23NC3T01</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>Course Title:</b>	<b>ENVIRONMENTAL SCIENCE</b>				
		<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>

### Course Objectives:

1. To make the students to get awareness on environment
2. 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
3. To save earth from the inventions by the engineers

23NC3T01

### Course Outcomes:

<b>Cos</b>	<b>Statements</b>	<b>Blooms Level</b>
CO1	Grasp multidisciplinary nature of environmental studies and various renewable and non-renewable resources.	<b>L2</b>
CO2	Understand flow and bio-geo-chemical cycles and ecological pyramids.	<b>L2</b>
CO3	Understand various causes of pollution and solid waste management and related preventive measures.	<b>L2</b>
CO4	Understand the rainwater harvesting, watershed management, ozone layer depletion and wasteland reclamation.	<b>L2</b>
CO5	Illustrate the causes of population explosion, value education and welfare programmes.	<b>L3</b>

### UNIT-I

Multidisciplinary Nature of Environmental Studies: - Definition, Scope and Importance - Need for Public Awareness.

Natural Resources : Renewable and non-renewable resources - Natural resources and associated problems - Forest resources - Use and over-exploitation, deforestation, case studies - Timber extraction - Mining, dams and other effects on forest and tribal people - Water resources - Use and overutilization of surface and groundwater - Floods, drought, conflict over water, dams - benefits and problems - Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies - Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies. - Energy resources:

### UNIT-II

Ecosystems: Concept 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:

- a. Forest ecosystem.
- b. Grassland ecosystem
- c. Desert ecosystem
- d. Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

Biodiversity and Its Conservation : Introduction and Definition: genetic, species and ecosystem diversity -

Dr MCSMADAN HOD & BOS, Department of Civil Engineering, B VCITS Batlapalem	Dr G Yesuratnam Professor of Civil Engineering JN TU Kakinada. (University Nominee)	Dr A Murali Krishna, Professor, Department of Civil Engineering, IIT Tirupathi	Dr B Raghuram kadali, Asst Assistant Professor, Departm ent of civil Engineering, NIT Warangal.	Mr P Rajesh Sr Engineer (P) SDV VL Survey & Constr uctions, Kakinada (Industrial Expert)	Mr Chakradhar Prasad Assistant Professor, Department of Civil ENR College of Engineering Technology Bhimavaram. (Alumni Member)
				<b>Head of the Department</b> Electronics & Communication Engineering Bonam Venkata Chalamayya Institute of Technology & Science	





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graphical classification of India - Value of biodiversity: consumptive use, Productive use, social, aesthetic and option values - Biodiversity at global, National and local levels - India as a diversity nation - Hot-spots of biodiversity - Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts - Endangered and endemic species of India - Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.

**UNIT-III**

Environmental Pollution: Definition, Cause, effects and control measures of:

- Air Pollution.
- Water pollution
- Soil pollution
- Marine pollution
- Noise pollution
- Thermal pollution
- Nuclear hazards

Solid 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: From Unsustainable to Sustainable development - Urban problems related to energy - Water conservation, rainwater 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 accidents and holocaust. Case Studies - Wasteland reclamation. - Consumerism and waste products. - 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.

**UNIT-V**

Human Population And The Environment: Population growth, variation among nations. Population explosion - Family Welfare Programmes. - 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. Field Work: Visit to a local area to document environmental assets River/forest grassland/hill/mountain - Visit to a local polluted site - Urban/Rural/Industrial/Agricultural Study of common plants, insects, and birds - river, hills slopes, etc.

**Textbooks:**

- Erach Bharucha, Textbook of Environmental Studies for Undergraduate Courses, Universities Press (India) Private Limited, 2019.
- Palaniswamy, Environmental Studies, 2/e, Pearson Education, 2014.
- S. Azeem Unnisa, Environmental Studies, Academic Publishing Company, 2021.

**Reference Books:**

- Deeksha Dave and E. Sai Baba Reddy, Textbook of Environmental Science, 2/e, Cengage Publications, 2012.

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njiReddy, "Textbook of Environmental Sciences and Technology", BS Publication, 2014.  
Sharma, Comprehensive Environmental Studies, Laxmi Publications, 2006.  
Chatwal, A Text Book of Environmental Studies, Himalaya Publishing House, 2018.

**Online Learning Resources:**

- [https://onlinecourses.nptel.ac.in/noc23\\_hs155/preview](https://onlinecourses.nptel.ac.in/noc23_hs155/preview)
- [https://www.edx.org/learn/environmental-science/rice-university-ap-r-environmentalscience-part-3-pollution-and-resources?index=product&objectID=course-3a6da9f2-d84c-4773-8388-1b2f8f6a75f2&webview=false&campaign=AP%C2%AE+Environmental+Science++Part+3%3A+Pollution+and+Resources&source=edX&product\\_category=course&placement\\_url=https%3A%2F%2Fwww.edx.org%2Flearn%2Fenvironmental-science](https://www.edx.org/learn/environmental-science/rice-university-ap-r-environmentalscience-part-3-pollution-and-resources?index=product&objectID=course-3a6da9f2-d84c-4773-8388-1b2f8f6a75f2&webview=false&campaign=AP%C2%AE+Environmental+Science++Part+3%3A+Pollution+and+Resources&source=edX&product_category=course&placement_url=https%3A%2F%2Fwww.edx.org%2Flearn%2Fenvironmental-science)
- <http://ecoursesonline.iasri.res.in/Courses/Environmental%20Science-I/Data%20Files/pdf/lec07.pdf>
- <https://www.youtube.com/watch?v=5QxxaVfgQ3k>

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