

PRASAD V. POTLURI SIDDHARTHA INSTITUTE OF TECHNOLOGY (Autonomous)

KANURU, VIJAYAWADA-520007

DEPARTMENT OF CSE (DATA SCIENCE)

II B. Tech – II Semester

## ENVIRONMENTAL SCIENCES

<b>Course Code</b>	20MC1402	<b>Year</b>	II	<b>Semester</b>	II
<b>Course Category</b>	Mandatory course	<b>Branch</b>	CSE(Data Science)	<b>Course Type</b>	Theory
<b>Credits</b>	0	<b>L-T-P</b>	2-0-0	<b>Prerequisites</b>	Nil
<b>Continuous Internal Evaluation:</b>	<b>30</b>	<b>Semester End Evaluation</b>	<b>70</b>	<b>Total Marks:</b>	<b>100</b>

## COURSE OUTCOMES

After successful completion of the course, the student will be able to	
<b>CO1</b>	Apply advanced solutions to measure the threats and hazards in environment to link with human natural systems.(L3)
<b>CO2</b>	Analyze the ethical ,cultural and historical interactions between man and environment.(L4)
<b>CO3</b>	Analyze various environmental assets and record for better management(L4)
<b>CO4</b>	Analyze global issues to design and evaluate policies(L4)
<b>CO5</b>	Apply system concepts to methodological social and environmental issues(L3)

## Contribution of Course Outcomes towards achievement of Program Outcomes &amp; Strength of correlations (H:High, M: Medium, L:Low)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
<b>CO1</b>	2													
<b>CO2</b>		2					3							
<b>CO3</b>		3					3							
<b>CO4</b>		2					3							
<b>CO5</b>	2													

UNIT NO	Contents	Mapped COs
I	<b>INTRODUCTION TO ENVIRONMENT AND NATURAL RESOURCES</b> Introduction to environment: Definition, scope & importance, need for public awareness for resource conservation. Natural resources: Renewable and non renewable resources and associated problems. Forest resources: Uses, Reasons for over-exploitation, deforestation effects with case studies- Chipko movement / Narmada Bachavo Andholan. Water resources: Use and over – utilization of surface and ground water, floods, drought, conflicts over water, Big dams- benefits & problems. Mineral resources: Uses, environmental effects of extracting and using mineral	CO1 CO2

	resources with case studies-Uranium exploration in Jharkhand. Food resources: World food problems, Impacts of overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies-Pesticide effects in Kerala. Energy resources: Growing energy needs, use of renewable and non renewable energy sources, case studies.	
II	<b>ECOSYSTEMS AND BIODIVERSITY</b> Structure components of ecosystem: Biotic and Abiotic components. Functional components of an ecosystem: Food chains, Food webs, Ecological pyramids, Energy flow in the ecosystem, Biogeochemical cycle: Nitrogen, carbon, Phosphorus cycle & Ecological succession. Biodiversity: Definition, Levels of biodiversity: genetic, species and ecosystem diversity. Bio-geographical classification of India, Values of biodiversity: consumptive use, productive use, social, ethical, aesthetic and optional values. India as a mega – diversity nation. Hot-spots of biodiversity. Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts. Conservation of biodiversity: In– situ and Ex-situ conservation of biodiversity.	CO1 CO2
III	<b>ENVIRONMENTAL POLLUTION AND CONTROL</b> Environmental Pollution: Definition, causes, effects and control measures of: Air Pollution, Water pollution, Soil pollution, Marine pollution, Thermal pollution, Nuclear hazards, Solid waste Management, e-waste, Pollution case studies- Delhi Smog / Ganga River Pollution / Taj Mahal Corrosion.	CO3
IV	<b>SOCIAL ISSUES AND GLOBAL ENVIRONMENT PROBLEMS AND EFFORTS</b> From Unsustainable to Sustainable development. Urban problems related to energy. Water conservation, rain water harvesting, watershed management, Remote sensing and GIS methods. Environmental ethics: Issues and possible solutions. Green building concept, Environmental Impact Assessment & Environmental Management Plans, Climate change: global warming, acid rain, ozone layer depletion.	CO4 CO5
V	<b>HUMAN POPULATION AND ENVIRONMENT LEGISLATION</b> Population growth, Environment and human health- HIV/AIDS,. Value Education. Women and Child Welfare. Role of Information Technology in Environment and human health. Environment Legislation-Air (Prevention and Control of Pollution) Act. Water (Prevention and Control of Pollution) Act. Wildlife Protection Act. Forest Conservation Act & Environmental Protection Act.	CO4 CO5

<b>Learning Recourses</b>
<b>Text Books</b>
<ol style="list-style-type: none"> <li>1. Anubha Kaushik and C.P. Kaushik, Text book of environmental studies New Age International Publisher (2014).</li> <li>2. Erach Barucha, Text book of environmental studies for undergraduates courses, published by – University Grants Commission, University Press (2005)</li> <li>3. Anindita Basak, Environmental Studies. Pearson (2009)</li> </ol>
<b>Reference Books</b>
<ol style="list-style-type: none"> <li>1. D.K. Asthana and Meera Asthana, A Text book of Environmental Studies, S. Chand (2010).</li> <li>2. P.M Cherry Solid and Hazardous waste Management, CBS Publisher (2016). Charles H. Eccleston, Environmental Impact Assessment, CRC Press (2011).</li> </ol>