

## PRASAD V. POTLURI SIDDHARTHA INSTITUTE OF TECHNOLOGY

(Autonomous)  
KANURU, VIJAYAWADA-520007  
II B. Tech – II Semester  
(Common to CSE (AI&ML and Data Science))

## ENVIRONMENTAL SCIENCES

Course Code	20MC1402	Year	II	Semester	II
Course Category	Mandatory course	Branch	CSE(AI&ML)	Course Type	Theory
Credits	0	L-T-P	2-0-0	Prerequisites	Nil
Continuous Internal Evaluation:	30	Semester End Evaluation	70	Total Marks:	100
<b>COURSE OUTCOMES</b>					
After successful completion of the course, the student will be able to					
CO1	Apply advanced solutions to measure the threats and hazards in environment to link with human natural systems.(L3)				
CO2	Analyze the ethical ,cultural and historical interactions between man and environment.(L4)				
CO3	Analyze various environmental assets and record for better management(L4)				
CO4	Analyze global issues to design and evaluate policies(L4)				
CO5	Apply system concepts to methodological social and environmental issues(L3)				

Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations (H:High, M: Medium, L:Low)														
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2													
CO2		2					3							
CO3		3					3							
CO4		2					3							
CO5	2													

UNIT NO	Contents	Mapped COs
I	<p><b>INTRODUCTION TO ENVIRONMENT AND NATURAL RESOURCES</b></p> <p>Introduction to environment: Definition, scope &amp; 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 &amp; problems. Mineral resources: Uses, environmental effects of extracting and using mineral</p>	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>