

## ENVIRONMENT AND ECOLOGY

<b>Course Code</b>	19ES5501D	<b>Year</b>	III	<b>Semester</b>	I
<b>Course Category</b>	Open Elective-I	<b>Branch</b>	Common to All	<b>Course Type</b>	Theory
<b>Credits</b>	3	<b>L – T – P</b>	3 – 0 – 0	<b>Prerequisites</b>	19MC1301 - Environmental Science
<b>Continuous Internal Evaluation</b>	30	<b>Semester End Evaluation</b>	70	<b>Total Marks</b>	100

Course Outcomes		Levels
After successful completion of the course, the student will be able to		
<b>CO1</b>	Integrate information related to structure and functions of ecological units.	L3
<b>CO2</b>	Analyze and communicate the concepts of environment.	L4
<b>CO3</b>	Analyze various environmental components and demonstrate using technology.	L4
<b>CO4</b>	Analyze and evaluate policies and frame works for welfare of environment & social sustainability	L4
<b>CO5</b>	Apply system concepts for bio-monitoring environmental issues.	L3

Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations (3-High, 2: Medium, 1: Low)														
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
<b>CO1</b>	3						2					2	2	
<b>CO2</b>	3					2	2						2	
<b>CO3</b>	3						2	3					2	
<b>CO4</b>	3						2						2	
<b>CO5</b>	3					2	2					2	2	

Syllabus		
Unit No.	Contents	Mapped COs
<b>I</b>	<b>Ecology:</b> Introduction – Biosphere, scope, organization and significance. Ecosystem concept- structure & function, Factors affecting ecosystem. Evolution: Natural Selection and its ecological significance. Population parameters- growth regulation, relationships between organisms.	CO1 CO2
<b>II</b>	<b>Natural Resources &amp; Management:</b> Resource- Definition, category, concept and scarcity of resource. Forests & wild life- Global productivity & human activities (Exploitation). Land Resource- use pattern in India, soil erosion & soil Conservation. Water resource- potentials and use with special reference to India, Concept of Integrated Water Resources Management (IWRM). Remote Sensing and GIS: Applications in conserving resources.	CO1 CO2
<b>III</b>	<b>Environmental Geosciences &amp; Computer Applications:</b> Structure and composition of atmosphere, hydrosphere, lithosphere and biosphere. Scale of meteorology, pressure, temperature, atmospheric stability. Graphical representation of Data, creating Database tables.	CO3

<b>IV</b>	<b>Environmental Policy, Education and Ethics:</b> Important National policies: National environmental policy, 2006 & National agricultural policy etc. Legislation: Environment Protection Act, 1986. Environmental education: Goals and objectives of environmental education. Environment awareness and action: Role of NGOs in environmental awareness. Environmental movements in India- silent valley movement, Chipko movement, Narmada Bachao Andolan, Environmental movements in the West- Green Peace.	CO5
<b>V</b>	<b>Environmental monitoring and management:</b> Environmental impact analysis and EMP; Analytical approaches and instrumentation in environmental monitoring; Biomonitoring of air pollution - plants as bio monitors; Bio monitoring of running water pollution (Software's); Organic Farming and its ecological significance.	CO4 CO5

<b>Learning Recourse(s)</b>
<b>Text Books</b>
<ol style="list-style-type: none"> <li>1. Singh, J.S; Singh, S.P. and Gupta S.R. (2014) Ecology, Environmental Science and Conservation. S. Chand &amp; Company Pvt. Ltd. New Delhi.</li> <li>2. Sharma, P.D. (2011) Ecology and Environment (11th edition) Rastogi Publication, Meerut.</li> <li>3. Bharucha, E. (2013) Text Book of Environmental Studies (2nd edition.). Universities Press, Hyderabad</li> </ol>
<b>Reference Books</b>
<ol style="list-style-type: none"> <li>1. Nobel, B.J. and Wright, R.T. (1995) Environmental Science. Prentice Hall.</li> <li>2. Agarwal, S.K. (1991) Pollution Ecology. Himanshu Publication, Udaipur.</li> <li>3. S.V.S.Rana, Essentials of Ecology and Environmental Science, Prentice Hall India, New Delhi, 2011.</li> </ol>
<b>e- Resources &amp; other digital material</b>
<a href="http://nptel.ac.in">http://nptel.ac.in</a>