

**CHOICE BASED CREDIT SYSTEM - LEARNING OUTCOMES-BASED
CURRICULUM FRAMEWORK**

ENVIRONMENTAL STUDIES

(Those who have joined in the Academic year 2023-24)

Sem	Subject	Teaching Hrs. Per Week	Cr.	Marks Allotted		
				Internal	External	Total
III	Environmental Studies	1	1	-	100	100
IV	Environmental Studies	1	1	-	100	100

Title of the Course		ENVIRONMENTAL STUDIES (All UG Courses)						
Part		IV						
Category	EVS	Year	II	Credits	1	Course Code	234103301	
		Semester	III					
Instructional Hours per week	Lecture	Tutorial	Lab Practice	Total	CIA	External	Total	
	1	-	--	1	-	100	100	
Learning Objectives								
LO1	To understand the basic knowledge of natural cycles in the environment.							
LO2	To know the various pollutants affecting environment.							
LO3	To apply the student knowledge in preventing pollution.							
UNIT	Details						No. of Periods for the Unit	
I	Scope and concept of Environmental Resources: Importance of Environmental studies – Natural resources – Non-renewable resources – Coal, Petroleum, Oil and Natural Gas, associated problems. Renewable resources – Solar, Wind, Biomass, Ocean Energy. Scope and limitations natural resources – Conservation of natural resources Equitable use of resources for sustainable development.						3	
II	Ecosystems: Concept – understanding of ecosystems – Degradation of ecosystems – prevention – Structure and functions of an ecosystem: producers, consumers and decomposers Types of ecosystems: Forest, grassland, desert and aquatic ecosystems.						3	
III	Biodiversity and its Conservation: Introduction – Genetic, species and ecosystem diversity – Values of biodiversity – India as a mega-diversity nation – Biodiversity hotspots – Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts – Endangered species and Conservation						3	
IV	Environmental Pollution: Introduction and types of Pollution Soil Pollution – causes, effects and control measures Marine Pollution – causes, effects and control measures Thermal and nuclear pollution – causes, effects and control measures Global warming – causes, effects and steps to be taken to minimise.						3	
V	Environment Laws and Impact: Environment Protection Act (1986); Air (Prevention & Control of Pollution) Act (1981); Forest Conservation Act (1980); Water (Prevention and control of Pollution) Act (1974); Wildlife Protection Act (1972). The Hazardous and Other Waste (Management and Trans boundary Movement) Rules, 2016, The Plastic Waste Management Rules, 2016, The Bio-Medical Waste Management Rules, 2016, The Solid Waste Management Rules, 2016, The e-waste (Management) Rules 2016, The Construction and Demolition Waste Management Rules, 2016, The Manufacture, Storage and Import of Hazardous Chemical (Amendment) Rules, 2000.						3	

Course Outcomes	
Course Outcomes	On completion of this course, students will;
CO1	Teach about Environmental segments and cycles.
CO2	explain the Degradation of ecosystems, Structure, functions and types of an ecosystem
CO3	demonstrate the Genetic, species and ecosystem diversity
CO4	make awareness to the Environmental Pollution
CO5	explain the environmental laws
Text Books (Latest Editions)	
1	Padmanabhan A., and et al., Environmental Studies for Undergraduate Courses, Research Department of Yadava College, Madurai, 2008
2	Environmental Chemistry, A.K.De, 8th edition, New age international publishers.
3	Arumugam, N, 2016, Concepts of Ecology. Saras publication, Nagercoil
4	J. Miyamoto and P. C. Kearney Pesticide Chemistry Human Welfare and the Environment vol. IV Pesticide Residue and Formulation Chemistry, Pergamon press, 1985.
5	Enger E. and Smith B., Environmental Science: A Study of Interrelationships, Publisher: McGraw-Hill Higher Education; 12th edition, 2010.
6	Mitra A. K and Chakraborty R., Introduction to Environmental Studies, Book Syndicate, 2016.
References Books (Latest editions, and the style as given below must be strictly adhered to)	
1	Erach Bharucha, Text book of Environmental studies for Undergraduate courses, Universities Press (India) Pvt. Ltd., 3 – 5 – 819, Hyderabad – 500 029
2	Eugene P. Odum, Fundamentals of Ecology, Natraj Publications, Dehra dun.
3	Kaushik A and Kaushik C.P., Perspectives in Environmental Studies, New Age International Publishers, New Delhi – 110 002. Meerut – 250 002, ISBN 81 – 7133 – 157 – 2
4	Sharma, Rastogi P.D., Ecology and Environment, Publications.
5	Thangamani and Shyamala Thangamani, A Text Book of Environmental Studies, Pranav Syndicate, Publication Division, Sivakasi.
Web Resources	
1	https://nptel.ac.in/courses/109/101/109101171/
2	https://nptel.ac.in/courses/104/105/104105124/

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10
CO1	S	S	S	S	S	S	S	M	S	M
CO2	M	S	S	S	M	S	S	M	M	M
CO3	S	S	S	M	S	S	S	M	S	M
CO4	S	S	S	S	S	S	S	M	M	M
CO5	S	S	S	S	M	S	S	M	M	M

3 – Strong, 2 – Medium, 1 - Low

Title of the Course		ENVIRONMENTAL STUDIES (All UG Courses)						
Part		IV						
Category	EVS	Year	II	Credits	1	Course Code	234103401	
		Semester	IV					
Instructional Hours per week		Lecture	Tutorial	Lab Practice	Total	CIA	External	Total
		1	-	--	1	-	100	100
Learning Objectives								
<p>This course aims to providing the students</p> <ul style="list-style-type: none"> ✍ To understand the basic knowledge of Structure of earth and its components. ✍ To understand the basic knowledge of Atmosphere. ✍ To know the various pollutants affecting environment. ✍ To know the various Road safety rules. ✍ To apply the student knowledge in Disaster management. 								
UNIT	Details							No. of Periods for the Unit
I	Earth and its Environment Earth formation and Evolution of Earth over time – Structure of earth and its components : Atmosphere, Lithosphere, Hydrosphere and Biosphere							3
II	Noise Pollution Measurement of noise indices, impact of noise and vibrations on human health, noise pollution standards, noise control, abatement measures – active & passive methods.							3
III	Air Pollution Air pollution causes, effects and control measures – Air Pollutants On Human Health, Plants and Materials, Acid Rain, Dispersion of Air Pollutants, Mixing Height/Depth, Lapse Rates.							3
IV	Water Pollution Water pollutants (sources, sampling and monitoring), Water-quality parameters and standards: physical and chemical parameters (colour, odour, taste and turbidity), Dissolved oxygen, BOD, COD. Method of control of water pollution: Water and waste water treatment.							3
V	Development and Disaster Management a) Sustainable Development Goals - sustainable agriculture – organic farming, irrigation – water harvesting and waste recycling – cyber waste and management. b) Disaster management – Flood and Drought – Earthquake and Tsunami – Landslides and Avalanches – Cyclones and Hurricanes – Precautions, Warnings rescue and Rehabilitation. c) Road safety rules – Traffic signals – Conduct of road safety awareness programme. d) Role of the Colleges, Teachers and Students in village adoption towards clean, green and make in villages in various aspects.							3
Course Outcomes								
Course Outcomes	On completion of this course, students will;							
CO1	Teach about Earth formation and Evolution.							
CO2	explain the Measurement of noise and its control.							
CO3	investigate the Air pollution causes, effects and control measures and acid rain							
CO4	demonstrate the colour, odour, taste and turbidity of water and waste water treatment							
CO5	make awareness to the Road safety and Disaster management							

Text Books (Latest Editions)	
1	Enger E. and Smith B., Environmental Science: A Study of Interrelationships, Publisher: McGraw-Hill Higher Education; 12th edition, 2010.
2	Arumugam, N, 2016, Concepts of Ecology. Saras publication, Nagercoil
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1	Gadgil M. and Guha R. 1993. <i>This Fissured Land: An Ecological History of India</i> Univ. of California Press.
2	Eugene P. Odum, Fundamentals of Ecology, Natraj Publications, Dehra dun.
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4	Sharma, Rastogi P.D., Ecology and Environment, Publications.
5	Thangamani and Shyamala Thangamani, A Text Book of Environmental Studies, Pranav Syndicate, Publication Division, Sivakasi.
6	Natural disaster-A guide for relief workers- JAC Adliyatmasadhana Kendra.
7	Disaster Management, Mukesh Kapoor, 2009
8	Textbook of Highway and Traffic Engineering, Saxena S.C, 2005.
9	Road safety management issues and perspectives, Prabha shastri ranade, 2010
10	Safety and Disaster Management, O.P. Dutta, 2014. Methods, Techniques, Recent Approach, Major Events & Exist Framework Hazardous Material.
11	The Indian Ocean Tsunami: The Global Response to a Natural Disaster By Pradyumna P. Karan, Shanmugam P. Subbiah, 2011.
Web Resources	
1	https://nptel.ac.in/courses/109/101/109101171/
2	https://nptel.ac.in/courses/104/105/104105124/

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CO1	S	S	S	S	S	S	S	M	S	M
CO2	M	S	S	S	M	S	S	M	M	M
CO3	S	S	S	M	S	S	S	M	S	M
CO4	S	S	S	S	S	S	S	M	M	M
CO5	M	S	S	M	S	S	S	M	S	M

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