

Branch Name:	Computer Engineering / Information Technology / Artificial Intelligence And Data Science / Information And Communication Technology/ Mechanical Engineering / Civil Engineering/ Electrical Engineering / Robotics & Automation
Program Code:	ET103 / ET105 / ET108 / ET107 / ET101 / ET106 / ET109 / ET113
Course Title:	Environmental Studies
Course Code:	2ET1000117T
Pre-requisite Course:	Basic information about natural systems sustaining the life on the earth

Course Objectives:

- The students will learn fundamental basics of Civil and Mechanical Engineering concepts.

Teaching and Examination Scheme:

Credit	Teaching Scheme Hours per week				Evaluation Scheme (Marks)								Total (Marks)
					Theory (Marks)				Practical (Marks)				
	L	T	P	Total	SEE		CCA		SEE		CCA		
					Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	
-	02	-	-	02	-	-	-	-	-	-	-	-	-

Course Contents:

Sr. No	Topic
01	Introduction of Environment and sustainable development Definition, principles and scope of Environmental Science. Components of Environment, Environmental education, ethics and public awareness, Concept of sustainability and sustainable development.
02	Ecology and Ecosystem Ecology- Objectives and Classification, Ecosystems –Concept, structure and function; Pond ecosystem, Forest ecosystem, Food chains, Food webs, ecological pyramid, energy flow in ecosystem, Concept of ecological succession
03	Biodiversity and its Conservation Levels of biological diversity- Genetic, Species and ecosystem; Biodiversity Hotspots with special reference to India; Threats to biodiversity, In-situ and Ex-situ; Endangered and endemic species – Concept; A forestation – Social forestry, Agro forestry, Green belt
04	Environmental pollution and its management Environmental pollution: concepts and types, Air, water, soil, noise and marine pollution causes, effects and control Concept of hazards waste and human health risks, Solid waste management: Control measures of Municipal, biomedical and E waste.
05	Global environmental issues Climate change, global warming, ozone layer depletion, acid rain and their impacts on human communities and agriculture,
06	Human population and the Environment Human population growth: Impacts on environment, human health and welfare, Population and Environmental Degradation Environmental movements: Bishnoi movement, Chipko movement, Silent valley, Narmada Bachao Andolan

07	Concept of 4R's and Environmental Policies Principles, Application of 4R's. Environment Laws: Wildlife Protection Act; Forest Conservation Act. Water (Prevention and control of Pollution) Act; Air (Prevention & Control of Pollution) Act; Environment Protection Act; Biodiversity Act Carbon Footprint, Cleaner Development Mechanism (CDM)
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Reference Books:

1. Textbook of Environmental Studies for Undergraduate Courses by Erach Bharuch Second edition, 2013 Publisher: Universities Press (India) Private Ltd, Hyderabad.
2. Basics of Environmental Studies by Prof Dr N S Varandani, 2013 Publisher: LAP Lambert Academic Publishing, Germany
3. Environmental Studies by Anindita Basak , 2009 Publisher: Drling Kindersley(India)Pvt. Ltd. Pearson
4. Textbook of Environmental Studies by Deeksha Dave & S S Kateva , Cengage Publishers.
5. Environmental Sciences by Daniel B Botkin & Edward A Keller Publisher: John Wiley & Sons.
6. Environmental Studies by R. Rajagopalan, Oxford University Press
7. Environmental Studies by Benny Joseph, TMH publishers
8. Environmental Studies by Dr. Suresh K Dhameja, 2007 Published by: S K Kataria & Sons New Delhi
9. Basics of Environmental Studies by U K Khare, 2011 Published by Tata McGraw Hill

Course Learning Outcomes (CLO):

1. Identify the types of pollution in society along with their sources
2. Understand the global environmental issues
3. To acquire basic knowledge and understand about biodiversity and its conservation
4. Implement the concept of recycle and reuse in all fields of engineering

List of Open-Source Software/learning website: MOEF, NPTEL

Course Learning Outcomes (CLO): On completion of this course, the students will be able to

Course Outcomes	Description	Bloom's Taxonomy Level
CLO1	Identify the types of pollution in society along with their sources	Understanding (2)
CLO2	Understand the global environmental issues	Understanding (2)
CLO3	To acquire basic knowledge and understand about biodiversity and its conservation	Understanding (2)
CLO4	Implement the concept of recycle and reuse in all fields of engineering	Understanding (2)

Mapping of CLO with PO and PSO:

Course Learning Outcomes	Program Outcomes (POs)												Program Specific Outcomes (PSOs)			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4
CLO1	M	M				M	M							M		
CLO2	M	M				M	M							M		
CLO3	M	M				M	M							M		
CLO4	M	M				M	M							M		

H: High, M: Medium, L: Low

