

## NIRMA UNIVERSITY

<b>Institute:</b>	<b>Institute of Technology</b>
<b>Name of Programme:</b>	<b>B Tech (All Programmes)</b>
<b>Course Code:</b>	
<b>Course Title:</b>	<b>Environmental Science</b>
<b>Course Type:</b>	Common
<b>Year of introduction:</b>	2022-23

L	T	Practical component				C
		LP W	P W	W	S	
2	1	-	-	-	-	3

### Course Learning Outcomes (CLOs):

At the end of the course, the students will be able to –

1. demonstrate principles of conservation of environment and energy resources (BL2)
2. summarize environmental pollutions and control techniques (BL2)
3. illustrate concepts of sustainability and environmental impact assessment (BL2)
4. identify possible solutions regarding social issues related to the environment. (BL3)

### Syllabus:

**Total Teaching hours:30**

Unit	Syllabus	Teaching hours
Unit-I	Multidisciplinary Nature of Environment: Introduction to environment and multidisciplinary nature of environment, energy and environment, Energy resources- Present energy resources in India, energy demand scenario in India, growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources, Environment conservation and management, Bio-diversity and its conservation, Atmospheric chemistry and ozone depletion, Greenhouse effect and its causes, Climate change: causes, effects, challenges, and remedial measures.	07
Unit-II	Environmental Pollution: Introduction of environmental pollution, various pollution parameters, Environment Performance indices. Types of environmental pollution and pollutants. Causes, effects and control measures of – Air pollution, Water pollution, Waste management: Solid, Plastic, E-waste, Construction & Demolition, 5 R's concept of waste management (refuse, reduce, reuse, repurpose, and recycle), Soil/land pollution, Noise pollution, Radioactive pollution and Thermal pollution. Role of an individual in prevention of pollution.	12
Unit-III	Sustainability and Environmental Impact Assessment: Concept of Sustainability and importance of sustainable development, introduction to sustainable development goals, case studies of sustainable designs/products/material/projects. Overview of environmental management systems. Introduction to green technologies, environmental impact assessment, carbon credit and carbon footprint.	05

Unit-IV Social Issues and the Environment:

06

Environment ethics, issues and possible solutions. Urban problems related to energy, water conservation, rain water harvesting, domestic Bio-composting, rehabilitation problems and concerns, Introduction of national and international environmental legislations and treaties.

Self-Study:

The self-study contents will be declared at the commencement of semester. Around 10% of the questions will be asked from self-study contents.

Suggested Readings/  
References:

- Dara, S. S., & Mishra, D. D. A textbook of Environmental Chemistry and Pollution Control, S. Chand & Company Ltd.
- Dhameja, S. Environmental Studies. S. Kataria and Sons.
- Ristinen, R., & Kraushaar, J. Energy and the Environment, Wiley.
- Masters, G. Introduction to Environmental Engineering and Science, Prentice-Hall Publications.
- Basak, A. Environmental Studies, Pearson Publications.
- Bharucha, E., Textbook of Environmental Studies, Universities Press

Suggested List of Experiments: -

Suggested Case List: -