

Branch Name:	B.Sc. (MLT/RIT/ AT/CCT)
Program Code:	AS101/AS102/ AS103/ AS104
Course Title:	Environmental Science
Course Code:	1AS1000203
Pre-requisite Course:	Basic knowledge of science at higher secondary level.

Course Objectives:

The course aims to build awareness of ecosystems, biodiversity, and sustainable resource management, understand pollution and its control in healthcare, and introduce environmental laws, policies, and sustainable practices in health sciences.

Teaching and Examination Scheme:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
Lecture (L)	Tutorial (T)	Practical (P)	Credit	Theory (Marks)		Practical (Marks)		Total (Marks)
				University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	
3	-	-	3	50	50	-	-	100

Course Contents:

Unit No	Topic	Total Hours
I	<u>Introduction to Environmental Science:</u>	4
	1. Definition, scope, importance of Environmental Science in healthcare	
	2. Human–Environment relationship, Sustainability & Sustainable Development Goals (SDGs)	
	3. Importance of environmental awareness in anesthesia, radiation, and imaging practices	
	4. Environmental ethics and human health	
II	<u>Ecosystems & Biodiversity:</u>	5
	1. Concept, structure, and function of ecosystems	
	2. Types of ecosystems (forest, aquatic, desert, grassland)	
	3. Biodiversity: definition, levels, values, threats, and conservation measures	
	4. Role of microbes and biotechnology in healthcare and waste treatment	
III	<u>Natural Resources and Environmental Pollution:</u>	5
	1. Natural Resources: Forest, Water, Energy, Land, and Air resources	
	2. Resource depletion and management in healthcare institutions	
	3. Environmental Pollution: Air, Water, Soil, Noise, Radiation Causes, effects, and control measures Case studies: Indoor air pollution in hospitals, Radiation hazards in imaging centers	
	4. Global issues: Climate change, Ozone depletion, Global warming	
IV	<u>Public Health, Environment & Hospitals:</u>	8
	1. Relationship between environment and human health	
	2. Occupational health hazards in anesthesia and radiology	
	3. Hospital waste management (biomedical waste rules, segregation, treatment, disposal)	

	4. Radiation safety, waste disposal in imaging centers, anesthetic gas pollution 5. Emerging issues: E-waste in medical equipment, Nanoparticles in imaging & drug delivery	
V	<u>Environmental Laws, Policies & Sustainable Practices:</u> 1. National and international environmental protection movements 2. Water Act 1974, Air Act 1981, Environmental (Protection) Act 1986 3. Biomedical Waste Management Rules, Radiation Protection Rules (AERB Guidelines) 4. Sustainable healthcare practices: green hospitals, energy efficiency in operation theatres and radiology departments 5. Role of healthcare professionals in environmental stewardship	8

Text Books/Reference Books:

1. Erach Bharucha, *Textbook of Environmental Studies for Undergraduate Courses*, University Grants Commission, 2005.
2. Anubha Kaushik & C.P. Kaushik, *Environmental Science and Engineering*, New Age International, 2019.
3. Gilbert M. Masters & Wendell P. Ela, *Introduction to Environmental Engineering and Science*, Pearson, 2013.
4. Daniel D. Chiras, *Environmental Science: A Systems Approach to Sustainable Development*, Jones & Bartlett, 2016.
5. William P. Cunningham & Mary Ann Cunningham, *Environmental Science: A Global Concern*, McGraw Hill, 2018.
6. Benny Joseph, *Environmental Studies*, Tata McGraw Hill, 2009.
7. C.N. Rao, *Environmental Pollution Control Engineering*, New Age International, 2012.
8. R.C. Sobti & G.J. Kaur, *Environmental Biotechnology: Concepts and Applications*, Narosa Publishing House, 2009.

Course Learning Outcomes (CLO):

On completing this course, students will understand the importance of environmental science in healthcare and be able to relate its concepts to medical practice. They will analyze ecosystems, biodiversity, and conservation strategies, while also assessing natural resources and pollution in hospital settings. The course will equip them to apply biomedical waste management, radiation safety, and sustainable practices, as well as interpret environmental policies and laws relevant to healthcare.