

Course Code	Course Title	L	T	P	C
BACHY101	Environmental sciences	2	0	0	2
Pre-requisite	nil	Syllabus Version			
		1			
Course Objectives					
To equip themselves with foundational knowledge of environmental systems, sustainability principles, and pollution control methods, to support applications in real-world engineering scenarios. To develop requisite skills related to sustainable practices, environmental protection, and policy frameworks. To make students understand and appreciate the unity of life in all its forms, the implications of life style on the environment.					
Course Outcomes					
Explain key environmental concepts like ecosystems and biodiversity. (CO 1) Interpret the impact of energy usage, pollution, and waste on environmental quality. (CO 2) Apply knowledge of environmental laws and sustainable development goals to achieve practical solutions for environmental protection. (CO 3), 4. Evaluate the human impact on climate change and the role of IT and AI in mitigating environmental issues. (CO 4)					
Module:1	Fundamentals of Environment and Ecosystems	6 hours			
Definition and scope of environmental science, Earth as a life-support system, Ecosystem definition, Components of the environment (biotic & abiotic), Structure and function of ecosystems, Energy flow in an ecosystem, and ecological succession.					
Module:2	Biodiversity and Environmental Quality	6 hours			
Biodiversity definition, levels, significance, and threats. Species interaction, types- extinct, endemic, endangered, and rare species. Conservation strategies and genetically modified crops. Environmental hazards: definition, types, causes, and solutions: Biological (Malaria, COVID-19), chemical (BPA, heavy metals), and disaster management.					
Module:3	Pollution and Its Management Techniques	6 hours			

Types of pollution: air, water, soil, noise, thermal- causes, effects, and control methods, water management, its conservation, circular economy and solid waste management techniques.		
Module:4	Environmental Laws and Sustainable development goals	6 hours
Environmental impact assessment (EIA), Key national and international environmental laws- Environmental protection act (EPA) – Air, Water, forest conservation and wildlife protection acts, Kyoto and Paris Agreement. Introduction to Sustainable development goals (SDGss).		
Module:5	Climate Change and Emerging Environmental Issues	4 hours
Climate change science and global warming, carbon footprint and mitigation strategies, role of AI/IoT in environmental monitoring.		
Module:6	Contemporary topics	2 hours
Lecture on green energy technologies		
Total Lecture Hours:		30 hours
Text Book(s)		
G. Tyler Miller and Scott E. Spoolman, " Environmental Science ", Cengage learning, 15 th Edition, 2020 Erach Bharucha, " Textbook of Environmental Studies for Undergraduate students ", Orient Blackswan Pvt Ltd, 4 th Edition, 2023		
Reference Books		
Richard T. Wright & Dorothy F. Boorse , " Environmental Science: Toward a Sustainable Future ", Pearson Education, 13 th Edition, 2020 Anubha Kaushik & C.P Kaushik , " Perspectives in Environmental Studies ", New Age International Publishers, 7 th Edition, 2021 Benny Joseph, " Environmental Studies ", McGraw Hill Education, 3 rd Edition, 2021		
Mode of Evaluation :Quiz		
Recommended by Board of Studies :		23-05-2025
Approved by Academic Council : No. 78		12-06-2025