

GANPAT UNIVERSITY									
FACULTY OF ENGINEERING & TECHNOLOGY									
Programme	Bachelor of Technology				Branch/Spec.	ALL			
Semester	II				Version	1.0.0.0			
Effective from Academic Year	2026-27				Effective from the batch admitted in	July 2026			
Course Code	2BSC1105				Course Name	Environmental Science			
Course Category	Basic Science Courses (BSC)								
Teaching Scheme					Examination scheme (Marks)				
(Per week)	Lecture (DT)		Practical (Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	2	0	0	0	2	Theory	50	50	100
Hours	2	0	0	0	2	Practical	0	0	0
Pre-requisites:									
Not Applicable									
Course Outcomes									
COs	Description								
CO1	Explain the fundamental concepts of environmental studies, ecology, ecosystems, and the interrelationship between environmental components and engineering activities.								
CO2	Analyze various types of environmental pollution, their sources, impacts, and current environmental issues affecting sustainability and human well-being.								
CO3	Describe global and national environmental policies, laws, governance frameworks, and regulatory compliance processes relevant to engineering practice.								
CO4	Apply principles of sustainability and resilience in engineering and infrastructure planning with reference to climate resilience and national sustainability goals.								
Theory Syllabus									
Unit	Content								Hours
1	Introduction to Environmental Studies Definition, interdisciplinary scope, Engineering roles, Environmental Components-Atmosphere, Hydrosphere, Lithosphere, Biosphere; Definitions: sustainability vs resilience vs development								03
2	Ecology and Ecosystems Introduction to Ecology, Ecosystem: Food chain, water cycle, Carbon Cycle, Nitrogen Cycle, Energy Flow, Ideal Ecosystem, Artificial Ecosystem, Engineering impacts on ecosystems								04
3	Environmental Pollution Air Pollution: Sources, Types, effects, and impact; Water Pollution: Sources, Types, effects, and impact; Land Pollution: Sources, Types, effects, and impact; Soil & Hazardous Waste, Marine Pollution, Noise, Light, Radiation								06
4	Current Environmental Issues Climate Change and Global Warming; Urbanization, Air Quality Crisis, Water Crisis and Water Security; Solid Waste, Plastic Waste and Marine Pollution; Infrastructure and Environmental Degradation; Fossil Fuel Dependency, Biodiversity Loss and Ecosystem Degradation; Environmental Risk, Disasters and Resilience								08
5	Environmental Policy, Laws & Governance Global Frameworks: UN SDGs, Paris Agreement; National Environmental Laws: Environment (Protection) Act, 1986, Water Act 1974, Air Act 1981, Environment Audit Rules 2025, End-of-Life Vehicles Rules 2025, Green Credit Programme; Regulatory Compliance: EIA/EMP processes, Environmental Clearance procedures								05

6	Sustainability and Resilience Principles Definition, Sustainability Metrics, Resilience Thinking, Climate Resilience, Green Building & Sustainable Materials, India's Goal 2047, India's Sustainability planning, and programme.	04
Practical and Self Learning Content		
Assignments, quiz, industrial visit, and tutorials are based on the above syllabus if required.		
Text Books		
1	Environmental Studies by Author: Anindita Basak. Pearson Education India	
2	Textbook of Environmental Studies by Author Dr. D. Dave and Dr. S. S. Katewa. Cengage Learning India	
Reference Books		
1	Environmental Science by G. Tyler Miller and Scott Spoolman. Cengage Learning	
2	An Introduction to Sustainable Development by P. P. Rogers, K. F. Jalal and J. A. Boyd. Earthscan Publications Ltd.	
3	Environmental Studies: From Crisis to Cure by R. Rajagopalan. Oxford University Press, India	
ICT/MOOCs Reference		
1	https://nptel.ac.in/courses/109105203	
2	https://onlinecourses.nptel.ac.in/noc23_hs155/preview	
3	https://www.coursera.org/learn/environmental-science	
4	https://www.coursera.org/specializations/environmental-science	

Mapping of COs, POs, and PSOs														
COs	PO 1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
CO1	2	1	2	2	3	2	1	0	3	1	1	3	2	2
CO2	1	2	3	2	3	3	2	0	3	1	1	2	2	3
CO3	1	2	2	1	2	3	3	0	3	1	2	3	2	3
CO4	1	1	2	2	3	3	3	1	3	2	2	3	2	3

Bloom's Taxonomy Level				
Unit	Unit Title	Aligned COs	Learning Hours	BTL Level
1	Introduction to Environmental Studies	CO1	3	U
2	Ecology and Ecosystems	CO1	4	N
3	Environmental Pollution	CO2	6	N
4	Current Environmental Issues	CO2	8	E
5	Environmental Policy, Laws & Governance	CO3	5	E
6	Sustainability and Resilience Principles	CO4	4	C

Note:

- Version 1.0.0.0 (First Digit= New syllabus/Revision in Full Syllabus, Second Digit=Revision in Teaching Scheme, Third Digit=Revision in Exam Scheme, Forth Digit= Content Revision)
- 1 Hour Lecture = 1 Credit, 1 Hour Tutorial = 1 Credit, 2 Hours Practical = 1 Credit, 2 Hours Internship/Project/Seminar = 1 Credit
- Bloom's Taxonomy Level (BTL): R: Remember, U: Understand, A: Apply, N: Analyze, E: Evaluate, and C: Create