GANPAT UNIVERSITY									
Faculty of Agriculture, Allied Sciences & Technology									
Programme	B.Sc. (Hons)					Branch/Spec	Agriculture		
Semester	II					Version	1.0.0.0		
Effective from Academic Year			2025-26			Effective for the batch Admitted in			July 2025
Subject code	IIA03ESD		Subject Name			**Environmental Studies and Disaster Management**			
Teaching scheme						Examination scheme (Marks)			
(Per week)	Lecture (DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	2	0	1	-	3	Theory	40	40	80
Hours	2	0	2	-	4	Practical	20	00	20

Objectives of the course:

CO-1. To study the introduction of environment, different layers and natural resources.

CO-2. To gain knowledge about the conservation of biodiversity and its importance.

CO-3. Aware students about problems of environmental pollution, its impact on human and ecosystem and control measures.

CO-4. To study the environmental ethics , Environment Protection Act and Human Population and the Environment.

CO-5. Meaning and nature of natural disasters, their types and effects and management and different organization for control disaster

Theory Syllabus

Unit	Content	Hrs
1	Introduction to Environment - Environmental studies: Definition, scope and importance - Multidisciplinary nature of environmental studies - Segments of Environment - Spheres of Earth - Lithosphere - Hydrosphere - Atmosphere - Different layers of atmosphere. Natural Resources: Classification - Forest resources. Water resources. Mineral resources Food resources. Energy resources. Land resources. Soil resources. Ecosystems: Concept of an ecosystem - Structure and function of an ecosystem - Energy flow in the ecosystem. Types of ecosystem.	7
2	Biodiversity and its conservation: Introduction, definition, types. Bio geographical classification of India. Importance and Value of biodiversity. Biodiversity hot spots. Threats and Conservation of biodiversity.	4
3	Environmental Pollution: Definition, cause, effects and control measures of: a. Air pollution. b. Water pollution. c. Soil pollution. d. Marine pollution. e. Noise pollution. f. Thermal pollution h. Light pollution. Solid Waste Management: Classification of solid wastes and management methods, Composting, Incineration, Pyrolysis, Biogas production, Causes, effects and control measures of urban and industrial wastes. Social Issues and the Environment: Urban problems related to energy.	5
4	Water conservation, rain water harvesting, watershed management. Environmental ethics: Issues and possible solutions, climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Environment Protection Act. Air	7

	(Prevention and Control of Pollution) Act. Water (Prevention and control of Pollution) Act. Wildlife Protection Act. Forest Conservation Act. Human Population and the Environment: Environment and human health: Human Rights, Value Education. Women and Child Welfare. Role of Information Technology in Environment and human health.	
5	Disaster management: Disaster definition - Types - Natural Disasters - Floods, drought, cyclone, earthquakes, landslides, avalanches, volcanic eruptions, Heat and cold waves. Man Made Disasters: Nuclear disasters, chemical disasters, biological disasters, building fire, coal fire, forest fire, oil fire, road accidents, rail accidents, air accidents, sea accidents. International and National strategy for disaster reduction. Concept of disaster management, national disaster management framework; financial arrangements; role of NGOs, community-based organizations and media in disaster management. Central, state, district and local administration in disaster control; Armed forces in disaster response; Police and other organizations in disaster management.	7

Practical Content

1. Visit to a local area to document environmental assets river/forest/grassland/hill/mountain.
2. Study of Energy: Biogas production from organic wastes.
3. Visit to wind mill / hydro power / solar power generation units. Biodiversity assessment in farming system.
4. Visit to local polluted site - Urban/Rural/Industrial/Agricultural to study of common plants, insects and birds.
5. Environmental sampling and preservation Process.
6. Determination of pH, EC and TDS from water sample.
7. Estimation of DO and BOD in water samples.
8. Estimation of COD in water samples.
9. Study of simple ecosystem – Visit to pond/river/hills. Visit to areas affected by natural disaster.

Reference book

1. De, A.K. 2010. Environmental chemistry. Published by New Age International Publishers, New Delhi. ISBN:13–978 81 224 2617 5. 384 pp
2. Dhar Chakrabarti, P.G. 2011. Disaster management - India's risk management policy frameworks and key challenges. Published by Centre for Social Markets (India), Bangalore. 36 pp.
3. Erach Bharucha, Text book for Environmental studies. University Grants Commission, New Delhi
4. Parthiban, K.T. Vennila, Prasanthrajan, S., Umesh, M. and Kanna, S. 2023. Forest, Environment, Biodiversity and Sustainable development. Narendra Publishing House, New Delhi, India. (In Press).
5. Prasanthrajan M. and Mahendran, P.P. 2008. A text book on Ecology and Environmental Science. ISBN 81-8321-104-6. Agrotech Publishing Academy, Udaipur - 313 002. First Edition: 2008
6. Prasanthrajan M. 2018. Objective environmental studies and disaster management. ISBN 9789387893825. Scientific publishers, Jodhpur, India. Pp. 146.
7. Sharma, P.D. 2009. Ecology and Environment, Rastogi Publications, Meerut, India
8. Tyler Miller and Scot Spoolman. 2009. Living in the Environment (Concepts, Connections, and Solutions). Brooks/cole, Cengage learning publication, Belmont, USA