

Program	All Undergraduate Program					
Year	2023-24		Semester		I/II	
Course Name	Environment and Ecological Sustainability					
Code	NBSCC1101/NBSCC1201					
Course Type	Co-Curricular	L	T	P	Credit	
Pre-Requisite		3	0	0	3	
Course Objectives	To develop basic knowledge of environment, ecology and ecosystem. To impart basic and key knowledge of atmosphere and global climate change. To develop a knowledge of natural resources, conservation and sustainable use. To recognized knowledge of effects disturbance, adaptation and development in ecosystem. To help students to acquire knowledge of pollution and environment protection.					
Course Outcomes						
CO1	Students will be able to understand atmosphere and climatic change, major biome and ecosystem energetic.					
CO2	Be able to conserve natural resource and to learn equity at different levels.					
CO3	Students are able to understand the benefits of sustainable use of natural resources.					
CO4	Develop improved understanding of environmental pollution, principles and application of environmental management tools including legislation and regulation.					
Module	Course Contents			Contact Hrs.	Mapped CO	
1	Environment & Ecology Environment and its segments: Definition, Scope and importance; Atmosphere: Composition, characterization, temperature behaviour and atmospheric stability, climate change; Hydrosphere; Water distribution Lithosphere: Structure and composition. Biosphere Ecology and Ecosystem: Introduction, Concept of an Ecosystem, Structure and function of Ecosystem, Energy flow in an Ecosystem, Food chain and food web, Types of Ecosystem; Ecological Pyramids: Definition, Types of Ecological Pyramid Material cycle: Definition and importance, Nitrogen and carbon cycle. Environmental Impact Assessment (EIA): Definition and Concept, Elements of EIA, Methods and its benefit.			20	1	
2	Natural Resource and its sustainable uses Natural resources: Definition, types of natural resource Water Resources: Drinking water quality, Water crisis and uses, Water borne and water induced diseases, Fluoride problem in drinking water, Rain water harvesting; Forest Resources: Impact of deforestation on environment Food resources: Crisis, Food adulteration and Hygiene National Policy for Food Security and Managements. Mineral Resources: Use and exploitation of minerals, Impact of mining on environment; Energy resources: Conventional and non-conventional energy sources, Solar energy, Hydropower energy, Hydrogen energy, Biomass-energy Sustainable Development: Definition, sustainable use and			20	2&3	

	conservation of natural resource, Equitable use of Resources, Common Property Resources; Biodiversity and its conservation Environment Management System(EMS): Definition, stages of EMS, Cost and benefits of EMS		
3	Environmental Pollution and Protection Environmental Pollution: Definition, Pollutants, sources, causes, effects and control measures of air, water, and soil pollution; Noise: Sources of Noise pollution, Measurement of noise, Noise exposure levels and standards. Impact of noise on human health. Noise control and abatement measures. Current environmental Issues: Population growth, Logistic growth curve equation. Climate change, Global Warming, Acid rain, Ozone layer, Waste Water Treatments. Environment Protection: Legal aspects of Environment Protection, Environment Protection Act, Air(Prevention and Control of Pollution)Act, Water(Prevention and control of Pollution)Act, Role of NGOs in Environment Protection. Environmental Protection and Sustainability Environmental Education and Awareness.	20	4

Suggested Readings

1. Environmental Studies: From Crisis to Cure- R. Rajagopalan, Oxford University Press
2. Adams B. (2021) Green Development: Environment And Sustainability In A Developing World Edition: 4th Edition, Routledge Publisher.
3. Sindhu S. and Sanyogita (2021) Environment Protection and Sustainable Development Law, Right and Issues (Edition 2021)
4. Keller, E.A. 2011. Introduction to Environmental Geology (5th edition). Pearson Prentice Hall.
5. Arjun Gope Abhijit Sarkar Prasamita Sarkar Santanu Majumder (2019) Environmental Issues & Sustainable Development

Online Resources

1. MEA (Millennium Ecosystem Assessment) 2005 a. Ecosystems and Human Well Being, World Resource Institute, Washington,D,C. www.wri.org.
2. Text Book for Environmental Studies-Erach Bharucha for University Grant Commission Bharti Vidyapeeth Institue of Environment Education and Research, Pune.
(Link: <https://mfs.mkcl.org/images/ebook/Environmental%20Studies%20Book.pdf>).

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(Prof. K.P. Sharma)