Code: BCA -1006T	VAC-I	Environmental Science and Sustainability	2L+T:0P	2 Credits (30 hours theory)

Max Marks: 100; Theory: 100; (External : 100 Marks)

Course Outcomes: Upon competition of the course, students will be able to

CO1: Understand the environmental concepts, sustainability, and impact of resource exploitation on Eco systems and communities.

CO2: Analyze the structure, function, and types of ecosystems, including ecosystem services and conservation strategies.

CO3: Evaluate the role of businesses in sustainable development and the significance of environmental legislation and social issues.

Unit	Topics	Purposed lectures
I	**Understanding Environment, Natural Resources, and Sustainability:** Fundamental environmental concepts and their relevance to business operations; Components and segments of the environment, the man-environment relationship, and historical environmental movements. Concept of sustainability; Classification of natural resources. Land resources: Minerals, soil, agricultural crops, natural forest products, medicinal plants, and forest-based industries and livelihoods; Land cover, land use change, land degradation, soil erosion, and desertification; Causes of deforestation; Impacts of mining and dam building on environment, forests, biodiversity, and tribal communities. Water resources: Natural and man-made sources; Uses of water; Over exploitation of surface and ground water resources; Floods, droughts, and international & interstate conflicts over water. Energy resources: Renewable and non-renewable energy sources; Use of alternate energy sources; Growing energy needs; Energy contents of coal, petroleum, natural gas and bio gas; Agro-residues as a biomass energy source. The conservation and equitable use of resources, considering both intergenerational and intergenerational equity, and the importance of public awareness and education.	10
II	**Ecosystems, Biodiversity, and Sustainable Practices:** Various natural ecosystems, learning about their structure, functions, and ecological characteristics. The importance of biodiversity, the threats it faces, and the methods used for its conservation. Ecosystem resilience, homeostasis, and carrying capacity, emphasizing the need for sustainable ecosystem management. Strategies for in situ and ex situ conservation, nature reserves, and the significance of India as a mega diverse nation.	5

III	**Social Issues, Legislation, and Practical Applications:** Dynamic interactions between society and the environment, with a focus on sustainable development and environmental ethics. Role of businesses in achieving sustainable development goals and promoting responsible consumption. Overview of key environmental legislation and the judiciary's role in environmental protection, including the Water (Prevention and Control of Pollution) Act of 1974, the Environment (Protection) Act of 1986, and the Air (Prevention and Control of Pollution) Act of 1981. Development – Environment conflict (displacement, resettlement and rehabilitation) and compensation mechanism to project affected people (PAP); Sustainable Development Goals: India's National Action Plan on Climate Change and its major missions, human population growth, and demographic changes in India.	10
IV	**Environmental Pollution, Waste Management, and Sustainable Development:** Various types of environmental pollution, including air, water, noise, soil, and marine pollution, and their impacts on businesses and communities. Causes of pollution, such as global climate change, ozone layer depletion, the greenhouse effect, and acid rain, with a particular focus on pollution episodes in India. Importance of adopting cleaner technologies; Solid waste management; Natural and man-made disasters, their management, and the role of businesses in mitigating disaster impacts.	5

Text Books:

1. Bharucha, E. *Textbook of Environmental Studies.* 3rd ed., Orient Blackswan Private Ltd., 2015.
2. Dave, D., and S. S. Katewa. *Text Book of Environmental Studies.* Cengage Learning India Pvt L 2018.
3. Rajagopalan, R. *Environmental Studies: From Crisis to Cure.* 4th ed., Oxford University Press, 2019.
4. Miller, G.T., and Scott Spoolman. *Living in the Environment.* 20th ed., Cengage, 2018.
5. Basu, M., and S. J. Xavier Savarimuthu. *Fundamentals of Environmental Studies.* Cambridge Univer Press, 2016.
6. Roy, M. G. *Sustainable Development: Environment, Energy and Water Resources.* Ane Books, 2017.
7. Pritwani, K. *Sustainability of Business in the Context of Environmental Management.* CRC Press, 2021
8. Wright, R.T., and Dorothy F. Boorse. *Environmental Science: Toward A Sustainable Future.* 13th Pearson, 2020.