

**DSE-03B : Discipline Specific Elective - 3
Sustainable Energy and Natural Resources**

**B.A. (Hons.) Humanities & Social Sciences - Semester V
Cluster Innovation Centre, University of Delhi**

Credit Distribution, Eligibility and Pre-requisites of the Course						
Course Title & Code	Credits	Credit Distribution			Eligibility Criteria	Pre-requisite
		L	T	P		
Sustainable Energy and Natural Resources (UPC: 3123100013)	4	1	0	3	Class XII Pass	Students must be familiar with concepts taught in any course under DSE-02

L = Lecture; T = Tutorial; P = Practical/Practice; UPC = Unique Paper Code

Learning Objectives

- To address the environmental consequences associated with the exploitation of natural resources.
- To address the different environmental impacts caused by fossil fuels and thermal power plants.
- To make students aware about different ways of energy efficiency use.

Learning Outcomes

- Students will gain a comprehensive understanding of sustainable energy and natural resources.
- Students will be equipped with the knowledge and tools to make informed decisions about sustainable development in their personal and professional lives.

Outline of DSE-03B

The course will engage with some of the issues around the impact of energy use on climate change, the concept of renewable energy, energy efficiency, natural resource management, sustainable development, and policy and regulation. Students will learn about different renewable energy technologies, including solar, wind, hydroelectric, geothermal, and bioenergy. The course will also explore the importance of energy efficiency in buildings, appliances, and transportation. The concept of sustainable development will be discussed, with a focus on balancing economic development and environmental protection. The course will also cover policy and regulation related to energy and natural resources, as well as the socioeconomic impacts of sustainable development.

Theoretical Component (15 Hours)

Introduction to sustainable energy, natural resources and its depletion and different forms of impact caused by anthropogenic activities on natural resources.

Indicative Themes

- Renewable and non-renewable resources
- Renewable energy
- Affordable and clean energy

Practical component (90 Hours)

- Mapping using GIS software
- Open Source Database from Earthexplorer.
- Open source database from IPCC (Intergovernmental Panel on Climate change e.g., Bioclim, Worldclim.
- Generation of Forest cover through NDVI (Normalized Difference on Vegetation Index),
- Vector and Raster database.
- Analysis of Land use Land cover analysis through Landsat series, Sentinel database.
- Analysis of Topography database through SRTM and Aster database.

Readings

1. Boyle, G. (2012). *Renewable Energy: Power for a Sustainable Future*. Oxford University Press.
2. Smil, V. (2017). *Energy and Civilization*. MIT Press.
3. Sachs, J. D. (2015). *The Age of Sustainable Development*. Columbia University Press.
4. Stern, N. (2007). *The Economics of Climate Change*. Cambridge University Press.
5. UNEP. (2020). *Global Resources Outlook*.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.
