

**GENERIC ELECTIVE COURSE**  
**GE 5 RESOURCES AND SUSTAINABILITY**

**CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE**

Course Title & Code	Credits	Credit Distribution of the Course			Eligibility Criteria	Pre-requisite of the Course (if any)
		Lecture	Tutorial	Practical		
Resources and Sustainability  GE 5	4	3	1	0	Studied Semester 6 of Bachelors	Nil

**Learning Objectives**

- To build an inter-disciplinary perspective on understanding environmental concerns, sustainable development and its challenges.
- To familiarize students with current debates and perspectives with respect to sustainable development.
- To familiarize students with the concepts of sustainable resource management.
- To develop skills and competencies amongst students with regard to energy, water and waste management.

**Learning Outcomes**

The students would be able to:

- Build an understanding of environmental concerns, sustainable development and its challenges.
- Understand the concept of resources and developmental issues with respect to sustainable development.
- Develop skills in sustainable resource management.

**THEORY**  
**(Credits 3; Hours 45)**

**UNIT I: Concept of Sustainable Development**

**12 Hours**

This unit lays thrust on the concept, need, principles, and goals of sustainable development, along with key global milestones and initiatives.

- Concept of sustainable development

- Need, objectives and principles of sustainable development
- National and international milestones, initiatives, summits and protocols
- Sustainable Development Goals (SDGs)

## **UNIT II: Developmental Issues and Resource Use**

**12 Hours**

This unit highlights environmental challenges, resource consumption, sustainable resource management, green practices, and green building rating systems.

- Environmental concerns, population explosion, urbanization, globalization, economic development, ecological footprint, carbon footprint
- Perspectives in resource consumption
- Sustainable management of key resources: Land, green cover, water, air, waste

## **UNIT III: Sustainable Management of Key Resources**

**12 Hours**

This unit deals with sustainable management of energy, water, waste, and air through strategies like star labelling, rainwater harvesting, and air quality monitoring.

- Energy management – star labelling, renewable energy
- Water management – Components of rain water harvesting system, rainwater harvesting potential, water auditing, waste water recycling, water testing
- Waste management – Waste to energy plants, waste to wealth
- Air management – Air quality, AQI

## **UNIT IV: Sustainable Practices by Industry and Green Buildings**

**9 Hours**

This unit deals with sustainable practices by industry and green buildings.

- Sustainable practices by industry
- CSR initiatives
- Green buildings and green building rating systems

## **TUTORIAL** **(Credit 1; Hours: 15)**

### **1. Sustainable Development Initiatives**

- Case studies on sustainable initiatives/CSR initiatives by industry/Green buildings
- Creation of awareness generation material for issues related to sustainable development
- Calculation of ecological and carbon footprint using various applications and websites

### **2. Energy Management**

- Understanding electricity bills: components and calculations
- Understanding BEE star labels as an initiative towards sustainable energy consumption

- Energy auditing
- Energy efficient lighting fixtures

### **3. Air, Water and Waste Management**

- Air/noise/water testing, AQI applications and websites
- Water auditing
- Rainwater harvesting
- Green modes of transportation, E-vehicles: components and calculations
- Case studies on waste management
- Biogas plants/ Waste to energy plants/ Waste water management

### **Essential Readings**

- Thakur, B., Thakur, R. R., Chattopadhyay, S., & Abhay, R. K. (Eds.). (2023). *Resource Management, Sustainable Development and Governance: India and International Perspectives*. Springer.
- Prasad, R., Jhariya, M. K., & Banerjee, A. (2021). *Advances in Sustainable Development and Management of Environmental and Natural Resources: Economic Outlook and Opinions*. CRC Press, Taylor & Francis Group.
- Goel, S. (Ed.). (2016). *Management of Resources for Sustainable Development*. New Delhi: Blackswan Publications.
- Somayaji, G., & Somayaji, S. (2009). *Environmental concerns and sustainable development: some perspectives from India*. New Delhi: TERI Publication.
- Sundar, I. (2006). *Environment and Sustainable Development*. New Delhi: APH Publishing Corporation.

### **Suggested Readings**

- Patel, B. N., & Nagar, R. (2018). *Sustainable Development and India*. Oxford University Press India.
- Filho, W. L., Rogers, J., & Raniga, U. I. (Eds.). (2018). *Sustainable Development Research in the Asia-Pacific Region: Education, Cities, Infrastructure and Buildings (World Sustainability Series)*. Springer.
- UN Millennium Project. (2005). *Innovation: Applying Knowledge in Development*. Science, Technology and Innovation Task Force Report.
- World Bank. (2006). *Enhancing Agricultural Innovation: How to go beyond the strengthening of research systems*. World Bank: Agriculture and Rural Development.

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