## GENERIC ELECTIVE COURSE (GE-08)

**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 |
|---|---|---|---|---|---|---|
| | | Lecture | Tutorial | Practical/ Practice | | |
| **Sustainability and Environment** | **4** | **3** | **0** | **1** | **12$^{Th}$** | **---** |

### COURSE OBJECTIVES:

The Learning Objectives of this course are as follows:

1. To evaluate the environmental impact of products or services using life cycle assessment.
2. To manage Intellectual Property portfolio to enhance the value of the firm.
3. To apply sustainable practices in daily life (reduce, reuse, recycle).
4. To advocate for environmental policies and practices.
5. To develop a sense of responsibility for environmental conservation.

### LEARNING OUTCOMES

The Learning Outcomes of this course are as follows:

After studying this paper, students will be able to

1. Analyze environmental issues and develop solutions.
2. Apply sustainability principles in various industries (business, government, non-profit).
3. Develop expertise in environmental management, policy, or conservation.

### THEORY: (45Hours)

### UNIT 1: CONCEPT OF SUSTAINABILITY (10Hours)

Importance and objective of Sustainability.Different aspects of sustainability: Energy, material, society and their correlation. Evolution of the concept of ESG (environment, social and governance). Sustainability and Net Zero concept. Concept of Life Cycle Analysis.

### UNIT 2: RULES, REGULATION, AND POLICIES RELATED TO SUSTAINABILI

**(10Hours)**

Importance of Rules, regulations and policies in maintaining sustainability, Policies related to sustainability in India, Sustainability Policies in Global scenario, India's Policy Landscape and its Business Implications

**UNIT 3: APPROACH TOWARDS SUSTAINABILITY (15Hours)**

Cocept of Circular Economy - Challenges, Opportunities and FutureProspects, Renewable energy and optimization of energy usage Socio-cultural dimensions for sustainable approach, The business case studies for sustainability

**UNIT 4: RESORCE MANAGEMENT (10Hours)**

Natural resource and its management, Energy managements, material recycling for used polymers.

**PRACTICALS: (30Hours)**

1. Study the effect of polymer degradation on soil and water i.e. pH, porosity, water retaining capacity.
2. Estimate the waste generation during preparation of polymers
3. Demonstrate the chemical recycling of used plastic sample PVC pipe
4. Prepare a biodegradable film for packaging of edible items
5. Submit a assignment on Indian regulation on dumping of plastic
6. Calculate the recycling efficiency of plastic bottles of laboratory chemicals.
7. Demonstrate a small polymer processing plant with “Net Zero Concept”.

**ESSENTIAL/RECOMMENDED READINGS**


1. Wilson, G., Furniss, P., &Kimbowa, R. (Eds.). (2010). Environment, Development, and Sustainability: perspectives and cases from around the world. Open University Press.
2. Mulligan, M. (2017). Introduction to sustainability. Taylor & Francis.
3. Pugh, C. (2014). Sustainability the environment and urbanisation. Routledge.


**ADDITIONAL RESOURCES:**


1. Adams, B. (2008). Green development: Environment and sustainability in a developing world. Routledge.
2. Thangavel, P., & Sridevi, G. (2016). Environmental sustainability. Springer, India, Private.
3. Barr, S. (2016). Environment and society: Sustainability, policy and the citizen. Routledge.


**ASSESSMENT METHODS:**

All the examiniations and assement methods shall be in the line with the University of Delhi gidelinceissused from time to time

**KEYWORDS:**

Energy managements, Circular Economy, Life Cycle Analysis, Natural resource, Sustainability.