

<b>GEDX 116</b>	<b>GREEN DESIGN AND SUSTAINABILITY</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>SDG 11</b>		<b>3</b>	<b>0</b>	<b>0</b>	<b>3</b>

**COURSE OBJECTIVES:**

**The objectives of the course are**

- To impart knowledge on the concepts of sustainable development and fundamentals of socio economic systems.
- To understand the basics of green building and frame work for the attainment of sustainability.
- To enhance the student's interest in the design of green building and energy efficient measures in a buildings.
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**MODULE I      CONCEPTS OF SUSTAINABLE DEVELOPMENT      9**

Objectives of Sustainable Development - Need for sustainable development - Environment and development linkages - Globalization and environment - Population, poverty and pollution- global, regional and local environment issues-Greenhouse gases and climate change.

**MODULE II      SUSTAINABLE DEVELOPMENT OF SOCIO ECONOMIC SYSTEMS      9**

Demographic dynamics of sustainability- Policies for socio economic development- Sustainable Development through trade- Economic growth-Action Plan for implementing sustainable development- Sustainable Energy and Agriculture.

**MODULE III      FRAME WORK FOR ACHIEVING SUSTAINABILITY      9**

Sustainability indicators- Hurdles to sustainability- Business and Industry – Science and Technology for Sustainable Development- Performance indicators of sustainability and assessment mechanism- Constraints and barriers of Sustainable Development.

**MODULE IV      GREEN BUILDINGS      9**

Introduction to Green Building- Energy- Water- Materials and Resources - Sustainable Sites and Land Use - Indoor Environmental Quality- Life Cycle Assessment- Energy, water and materials efficiency - Elements of Green Buildings Design- Foundation, Electrical, Plumbing, flooring, Decking, roofing, insulation, wall coverings, windows, siding, doors and finishing, LEED certification for Green Buildings, Green Buildings for sustainability.

**MODULE V      ENERGY CONSERVATION AND EFFICIENCY      9**

Energy savings- Energy Audit- Requirements- Benefits of Energy conservation-Energy conservation measures for buildings- Energy wastage- impact to the environment.

**Total Hours –45**

**TEXT BOOKS:**

1. Charles Kibert, J., "Sustainable Construction: Green Building Design and Delivery", 5th Edition, John Wiley and sons, 2022.
2. Peter P Rogers, Kazi F Jalal and John A Boyd "An Introduction to Sustainable Development" Earthscan, 2017
3. Kirby, J., Okeefe, P., and Timber lake, "Sustainable Development", Earthscan Publication, London, 2007.
4. Moncef Krarti, "Energy Audit of Building Systems: an Engineering approach" CRC Press, LLC, Florida 2020.

**REFERENCES:**

1. Handbook of Green Building Design and Construction: LEED, BREEAM,
2. Green Building Handbook: Volume 2: A Guide to Building Products and their Impact on the Environment Paperback 2000

**COURSE OUTCOMES:**

At the end of the course, the students will be able to

- Explain the objective, need for the sustainability and the link between the globalization and environment.
- Address the economic, environmental, and social concerns in the sustainable development.
- Acquire knowledge on the performance indicators, constraints and barrier for sustainability.
- Explain the relationship between sustainability and emergence of green building practices.
- Conduct the energy audit on green building design and suggest ideas for attaining sustainability in building.

**Board of Studies (BoS) :**

18<sup>th</sup> BoS of CE held on 05.04.2023

**Academic Council:**

20<sup>th</sup> Academic Council held on 13.04.2023

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	H	H				H	H				M	M	H	L	M
CO2	M	H	H	M	H	H	H		M	H		M	H	L	M
CO3	H	H	M	L		H	H		L	M	H		H	L	M
CO4	L	H			H	H	H		H		H	M	H	L	M
CO5	H	H	H	M	H	H	H	H	H	H	H	M	H	L	M

**Note:** L- Low Correlation    M -Medium Correlation    H -High Correlation

SDG 11 : Make cities and human settlements inclusive, safe, resilient and sustainable

Statement : Green building and design with sustainable indicator will enhance the sustainable development.