

GREEN BUILDINGS

Lectures / Tutorials : 4 Periods/Week
Semester End Exam. : 3 Hours

Sessional marks : 40
Semester End Exam. marks : 60
Credits : 4

Course Objectives:

- Describe green building and the role of USGBC and LEED
- Recognize the intents of each LEED credit category
- Explain key sustainability terms and concepts
- Identify green building best practices
- Recognize cutting-edge examples
- Discuss cost considerations of green building

Course Outcomes:

Student will be able to

- Describe the green building & sustainable design concepts.
- Comprehend properties of green building construction materials and their qualitative input to design.
- Begin to formulate a personal attitude toward green building design.
- Describe the requirements for LEED (Leadership in Energy and Environmental

UNIT-I

Introduction to green building:

Introduction to the ideas, issues and concepts of sustainable planning, global environment and the built environment, principles of environmentally and ecologically supportive planning.

Building Science Fundamentals:

General features- Use of energy, materials, health and global environment, indoor air quality as related to the construction and operation of buildings.

UNIT-II

Green materials:

Traditional and Recycled Materials in context of Sustainability

Green Design:

Sustainable and conservation practices – water conservation, harvesting and recharge – Traditional and Modern Methods sewerage treatment, solid waste treatment- Solid and Liquid Waste Management, (with special reference to energy efficiency, recycling and re-use), economics and management

UNIT-III

Energy Auditing:

Low energy design, hybrid systems, modeling and simulation of energy systems, integration of PV and wind systems in the building, wind solar and other non conventional energy systems, solar thermal applications for heating and cooling, electricity generation in buildings

UNIT IV

Overview of Green Building rating systems:

USGBC, TERI-GRIHA and LEED rating systems

Case studies on specific contemporary sustainable practices:

Case studies on green practices of abroad countries, Case studies on green practices in India countries, contemporary and famous examples of sustainable / energy efficient architecture / settlement planning across the world.

Books/Manuals:

1. Green homes : Efficient,Healthyand Smart by R.K .Gautham, BS publications,2009.
2. Sustainable Building Technical Manual - Green Building Practices for Design, Construction and Operations, US Green Building Council, 2011.
3. IGBC Green Homes - Rating System (Version 1.0) – Abridged reference guide, 2009.

REFERENCES:

1. Green Building A Basic Guide to Building and Remodeling Sustainably; Tree Hugger Consulting.
2. Green Building Handbook, Volume 1, Tom Woolley, Sam Kimmins, Paul Harrison and RobHarrison; E & FN Spon, an imprint of Thomson Science & Professional.

WEB REFERENCES:

WWW.IGBC.in

WWW.sbtmanual.in