



COURSECONTENT

GREEN BUILDING TECHNOLOGY								
III Semester: SE								
CourseCode	Category	Hours/Week			Credits	Maximum Marks		
		L	T	P		C	CIA	SEE
2532001	Core	3	0	0	3	40	60	100
contactClasses:45		Tutorial Classes:Nil		Practical Classes:Nil		TotalClasses:45		
Prerequisites: NIL.								

Course Overview:

Green Building Technology is a sustainable approach to the design, construction, and operation of buildings that aims to minimize environmental impact while improving efficiency and occupant comfort. It focuses on key principles such as energy efficiency, water conservation, use of eco-friendly and recycled materials, and maintaining good indoor environmental quality. The course covers topics like site planning, renewable energy integration, waste management, and green building rating systems such as LEED, GRIHA, and IGBC. By applying these concepts, green buildings help reduce resource consumption, lower carbon emissions, and promote a healthier and more sustainable built environment.

Course Objectives:

1. To understand the fundamentals of green buildings, their need, benefits, and essential sustainable features.
2. To learn green building concepts and rating systems including IGBC, LEED, and energy-efficient practices in design and construction.
3. To study green building design strategies focusing on energy reduction, renewable energy sources, and eco-friendly power generation.
4. To understand energy-efficient HVAC and building systems including design philosophy, equipment selection, and sustainable interventions.
5. To explore material conservation and indoor environmental quality, emphasizing waste reduction, recycled materials, IAQ improvement, and occupational health.

Course Outcomes: After Completion of the Course, Students should be able to

1. Explain the concept, benefits, and key requisites of green buildings for sustainable development.
2. Analyze the principles, rating systems, and energy efficiency practices adopted in green building projects.
3. Apply energy reduction and renewable energy strategies in the design of green buildings.
4. Evaluate HVAC system design and energy modeling approaches for sustainable building performance.
5. Design material conservation and indoor environmental quality measures for healthy and eco-friendly buildings.



MARRI LAXMAN REDDY

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SYLLABUS:

UNIT – I

Overview of the significance of energy use and energy processes in building - Indoor activities and environmental control - Internal and external factors on energy use and the attributes of the factors - Characteristics of energy use and its management - Macro aspect of energy use in dwellings and its implications.

UNIT – II

Indoor environmental requirement and management - Thermal comfort - Ventilation and air quality – Air-conditioning requirement - Visual perception - Illumination requirement - Auditory requirement.

UNIT – III

Climate, solar radiation and their influences - Sun-earth relationship and the energy balance on the earth's surface - Climate, wind, solar radiation, and temperature - Sun shading and solar radiation on surfaces - Energy impact on the shape and orientation of buildings.

UNIT – IV

End-use, energy utilization and requirements - Lighting and day lighting - End-use energy requirements - Status of energy use in buildings - Estimation of energy use in a building. Heat gain and thermal performance of building envelope - Steady and non-steady heat transfer through the glazed window and the wall - Standards for thermal performance of building envelope - Evaluation of the overall thermal transfer.

UNIT – V

Energy management options - Energy audit and energy targeting - Technological options for energy management.

REFERENCE BOOKS:

1. Bryant Edwards (2005): Natural Hazards, Cambridge University Press, U.K.
2. Carter, W. Nick, 1991: Disaster Management, Asian Development Bank, Manila.
3. Sahni, Pardeep et al. (eds.) 2002, Disaster Mitigation Experiences and Reflections, Prentice Hall of India, New Delhi.
4. Bryant Edwards (2005): Natural Hazards, Cambridge University Press, U.K. University Press, 2010.

ELECTRONIC RESOURCES:

<https://nptel.ac.in/courses/105102195>



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MATERIALS ONLINE:

1. Course template
2. Tutorial question bank
3. Definitions and terminology
4. Assignments
5. Model question paper – I
6. Model question paper – II
7. Lecture notes
8. E-Learning Readiness Videos (ELRV)