

DEPARTMENT OF CIVIL ENGINEERING
GREEN BUILDINGS (Open Elective-I)

SYLLABUS FOR B.E. III-SEMESTER

L : T : P (Hrs./week):2:0:0	SEE Marks:60	Course Code: U22OE310CE
Credits: 2	CIE Marks:40	Duration of SEE: 3 Hrs

COURSE OBJECTIVES	COURSE OUTCOMES
Objectives of this course are to:	Upon the completion of this course the students will be expected to:
<ol style="list-style-type: none">Learn the principles of planning and orientation of buildings.Environmental implications of natural and building materials along with green coverAcquire knowledge on various aspects of green buildings	<ol style="list-style-type: none">Explain the principles of building planning, its bylaws and provide facilities for rainwater harvesting.Analyse the aspects of energy, water and waste management in buildings.Understand the concepts of green building technologies.Understand rating systems of GRIHA IGBC and LEED.

UNIT-I: Planning of buildings: Principles of planning, Relevant building bylaws, site selection for buildings, orientation of buildings, Provision of rain water harvesting

UNIT-II: Building-Energy-Implications: Environmental implications of buildings energy, carbon emissions, water use, waste disposal; Building materials: sources, methods of production and environmental Implications. Green building materials and recycling, Green cover and built environment

UNIT-III: Green Building Technologies:Introduction- Necessity - Concept of Green building. Principles of green building – Site selection criteria for Green Buildings – effective cooling and heating systems – effective electrical systems-Passive solar architecture - effective water conservation systems

UNIT-IV: Certification Systems: Certification systems- Green Rating for Integrated Habitat Assessment (GRIHA), Indian Green Building Council (IGBC) and Leadership in Energy and Environmental Design (LEED), case studies

Learning Resources:

- Kumara Swamy N.KameswaraRao A., Building Planning And Drawing, Charotar, Publications, 2013.
- Shahane, V. S, "Planning and Designing Building", Poona, Allies Book Stall, 2004.
- Michael Bauer, Peter Mösle and Michael Schwarz "Green Building – Guidebook for Sustainable Architecture" Springer, 2010.
- Tom Woolley, Sam Kimmins, Paul Harrison and Rob Harrison "Green Building Handbook" Volume I, Spon Press, 2001.
- MiliMajumdar, "Energy-efficient buildings in India" Tata Energy Research Institute, 2002.
- TERI "Sustainable Building Design Manual- Volume I & II" Tata Energy Research Institute, 2009.

The break-up of CIE: Internal Tests + Assignments + Quizzes

1	No. of Internal Tests	:	2	Max. Marks for each Internal Test	:	30
2	No. of Assignments	:	2	Max. Marks for each Assignment	:	5
3	No. of Quizzes	:	2	Max. Marks for each Quiz Test	:	5
	Duration of Internal Tests	:	90 Minutes			

