

**School of Planning and Architecture: Vijayawada**

(An institution of National Importance under the Ministry of Human Resource Development, Govt. of India)  
Survey No.4/4, ITI Road, Vijayawada-520008, Andhra Pradesh, India

**Department of Architecture**

**Course:** ARC4213 -Green Buildings and Rating Systems  
**Instructors:** Dr. Lilly Rose A

**Class:** IV B. Arch VIII Sem A.Y. 2023-24

**Internal Assessment:** 50

**External Theory Exam:** 50

**Total Marks:** 100

**Credits:**3

**Contact Periods/ week:** 03 periods.(55 min each)

**Time Table:** Wednesday 09:00am -11:45am

**Attendance:** Min 75%

**Min. Passing Marks:** 40% each in Internal & External Assessment and 50% in Aggregate

**Objective:** To make students familiar with the overall concept of green buildings in the modern-day context, provide them with a historical context of green building evolution, give an overview of global green building ratings followed and learn in detail about the green building ratings followed in India.

**Out Line of the Course:****LECTURE PLAN**

WEEK	DATE	TOPIC OF CLASS LECTURE & DISCUSSION	TOPIC OF STUDIO WORK& ASSIGNMENTS / REMARKS
1	Week-1 03-01-2024	Introduction to Green buildings - an overview	Lecture + inclass activity
2	Week-2 10-01-2024	Features and benefits of green building, need for Green buildings	Lecture + exercise
3	Week-3 17-01-2024	Site and landscape strategies, Building energy system strategies , Low Energy Buildings, Renewable Energy Systems (Solar and Wind) , Building Water Conservation	Lecture + Introduction to Assignment 1
4	Week-4 24-01-2024	Site and landscape strategies, Building energy system strategies , Low Energy Buildings, Renewable Energy Systems (Solar and Wind) , Building Water Conservation	Lecture + inclass activity
5	Week-5 31-01-2024	Materials selection strategies, Life Cycle Assessment , Indoor Environmental Quality (IEQ) analysis and strategies	Lecture + LCA analysis
6	Week-6 07-02-2024	Environmentally friendly building materials and technologies	Inclass activity / introduction to instruments for micro climate
7	Week-7 14-02-2024	Global Green Rating systems - Evolution and Overview	Lecture
8	Week-8 21-02-2024	LEED, USGBC, BREEAM, CASBEE Introduction to high-performance green buildings	Lecture + inclass activity
9	Week-9 28-02-2024	<b>Mid Semester week</b>	<b>Mid Semester Examination</b>
10	Week-10 06-03-2024	Building assessment and Process of Green rating systems	Inclass activity / Excercises
11	Week-11 13-03-2024	Indian Green Building Rating systems: IGBC-LEED Green Building Rating Systems and its adaptations	Lecture + Introduction to Assignment 2
12	Week-12 20-03-2024	GRIHA Rating system - core concepts, IGBC , GRIHA for new constructions, residential and office buildings	Lecture + inclass activity
13	Week-13 27-03-2024	Analysis of Green rating systems procedures with examples	Inclass activity / Excercises
14	Week-14 03-04-2024	Economic analysis of Green buildings , LCC and material selection, Cradle to Grave, Cradle to	Inclass activity / Quiz

15	Week-15 10-04-2024	Building Automation and Building Management System	Lecture / Seminar
16	Week-16 17-04-2024	Future directions in green high performance building technologies	Lecture + inclass activity

S. No.	Stages of Evaluation	Weightage in %
1	Internal assessment (Class test, Quizzes, assignments, exercises, seminar etc. )	30
2	Mid-semester Examination	20
3	End Semester Examination	50
	Total	100

**Reference Books:**

1. 'Alternative building materials and technologies' by K.S. Jagadish, B.V. Venkatarama Reddy and K.S. Nanjunda Rao.
2. 'Non-Conventional Energy Resources' by G. D. Rai, Khanna Publishers.
3. "Renewable Energy Sources and Their Environmental Impact", Shahid A. Abbasi, Naseema Abbasi; PHI Learning Pvt. Ltd., 2004
4. Indian Energy Conservation Act 2001, Gol.
5. Energy Conservation Building Code Manual, Gol., 2017.
6. Campbell Scot, "Green Cities, Growing Cities and Just Cities: Urban Planning and the Contradictions of Sustainable Development", Journal of American Planning Association 62:3, 296-312, 1996.
7. "GRIHA Manuals", The Energy and Resources Institute (TERI), 2011
8. "Energy-efficient Buildings in India", The Energy and Resources Institute (TERI), 2011
9. Majumdar M, "Energy-efficient Building in India", TERI Press, 2000.
10. David Johnson, Scott Gibson, "Green from the Ground Up: Sustainable, Healthy and Energy efficient home construction", Taunton Press, 2008.

**Course Instructor:**

(Dr. Lilly Rose A)

**Head of Department:**

(Dr. Uma Sankar Basina)