



School of Planning and Architecture: Vijayawada
 (An institution of National Importance under the Ministry of Education, Govt. of India)
 Survey No.4/4, ITI Road, Vijayawada-520008, Andhra Pradesh, India

Department of Architecture

Course: MLAR213;Energy Efficient Landscape	Class: M. Arch (LA) and M.Arch (SA) III Sem A.Y. 2024-25;
Instructors: Dr. Shanmuga Priya G	Internal Assessment: 50
Contact Periods/ week: 03 periods	External Theory Exam: 50
Time Table: Tuesday 9:00 am to 11:45 am	Total Marks: 100
Attendance: Min 75%	Credits: 3
Min. Passing Marks: 50% each in Internal & External Assessment, 50% in Aggregate	
Objective: To give an opportunity to students to study energy efficient landscapes in detail to enhance its application in landscape planning or landscape design process.	

LECTURE PLAN

WEEK	DATE	TOPIC OF CLASS LECTURE & DISCUSSION	TOPIC OF ASSIGNMENTS and CLASS EXERCISES / REMARKS
1	23-07-2024	Introduction - Need for Energy Efficient Design; Sunpath Diagram and visualization tools	Class Exercise I - on Sunpath Diagram and Visualization of Global wind patterns and ocean currents
2	30-07-2024	Climate and Weather; Factors influencing climate, Climate Classification- Koppen Classification, elements of climate and thermal Comfort.	Class Exercise II - Identification of cities in different climatic zones and analysis of climatic elements using Climate consultant software, Andrew Marsh tools
3	06-08-2024	Transfer of energy in the atmosphere; green house gases; Urban heat island effect. Thermal Comfort and indices	Class Exercise II - Continued ; Visit to Climatology Lab - Demo of the instruments available for collecting micro-meteorological data
4	13-08-2024	India - Climatic Zones and seasons, Growing seasons and conditions of plant growth; agricultural zones and Forest types	Class Exercise - III on forest type and key species in a selected regions in India
5	20-08-2024	Landscape Elements ; Hard and Soft Landscape elements; Micro climate and Landscape; Modifications of Solar radiation and Wind	Introduction to Assignment I - Group work
6	27-08-2024	Passive strategies in different climatic zones and case studies	Discussion on Assignment 1 Progress
7	03-09-2024	Energy efficiency in Landscapes - analysis, Softwares and simulation - Introduction	Discussion on Assignment 1 Progress
8	10-09-2024	Green Building rating systems- Introduction and LEED, IGBC and GRIHA discussion on elements related to landscape; Living Building Challenge; Green Rated Projects - Discussion	
9	17-09-2024	Mid-semester examination	Mid-semester examination
10	24-09-2024	Green Building rating systems- SITE; Living Building Challenge; Green Rated Projects - Discussion	Discussion on Assignment 1 Progress
11	01-10-2024	Energy efficiency in Landscapes - analysis, Softwares and simulation - Demonstration of Envi-met Analysis	Discussion on Assignment 1 Progress

12	08-10-2024	Effectiveness of Passive strategies and landscape elements in different climatic zones and case studies/ research at city scale	Presentation of Assignment 1
13	15-10-2024	Effectiveness of Passive strategies in different climatic zones and case studies at neighborhood and site level	Presentation of Assignment 1
14	22-10-2024	Embodied carbon and Landscape Design; Use of Pathfinder Tool.	Introduction to Class Exercise IV
15	29-10-2024	Case studies of Energy Efficient Landscape Design	Discussion on Class Exercise IV Progress
16	05-11-2024	Discussion and presentation of Class Exercise IV	
17	12-11-2024	Review of key concepts, strategies and cases	

S. No.	Stages of Evaluation	Weightage
1	Class Exercises	20
2	Second stage: Mid-semester Examination	20
3	Assignment I	10
	Total	50

Reference Books:

1. Brown, R. D., & Gillespie, T. J. (1995). Microclimatic landscape design: creating thermal comfort and energy efficiency (Vol. 1). New York: Wiley.
2. CPWD (2013) Integrated Green Design for Urban & Rural Buildings in Hot-Dry Climate Zone
3. GRIHA Version 2019 Manual (Volume I)
4. Haque, M. T., Tai, L., & Ham, D. (2004). Landscape design for energy efficiency.
5. Krishan, A et.al(2001), Climate Responsive Architecture: A Design Handbook For Energy Efficient Buildings, McGraw Hill
6. Oke, T. R. (2002). Boundary layer climates. Routledge. - Chapter 5 - "Climates of non-uniform terrain"
7. Schultz, J., & Schultz, J. (2005). The Ecozones of the World: The Ecological Divisions of the Geosphere. Springer Science & Business Media. Berlin, Heidelberg. https://doi-org.aurarialibrary.idm.oclc.org/10.1007/3-540-28527-X_1
8. Seçkin, N. P. (2018). Environmental control in architecture by landscape design. A/Z ITU J. Fac. Archit, 15, 197-211.
9. Vashist, A. Energy efficient landscapes: a case study in the national capital region of Delhi. NAGARLOK VOL. LII, Part 4, October-December 2020
 - <http://andrewmarsh.com/apps/staging/shading-box.html>
 - <https://sustainabilityworkshop.venturewell.org/node/1515.html>
 - <https://earth.nullschool.net/#current/wind/surface/level/orthographic=124.85,10.40,223>

G. Shanmuga Priya

Course Instructors:
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Head of Department