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:	**ARC 216 Climate and Built Forms**	**Class: Yr :** B. Arch (LA) III Sem A.Y. 2023-24 A- Section
Instructors:	Dr. Shanmuga Priya G	**Internal Assessment:** 50 **External Theory Exam:** 50
Contact Periods/ week: 03 periods		**Total Marks:** 100
Time Table:	Thursday 9:00 am to 11:45 am	**Credits:** 3
Attendance: Min 75%	**Min. Passing Marks:** 50% each in Internal & External Assessment, 50% in Aggregate	

Objective:
- To list the different elements of climate and classify them.
- To identify the various aspects affecting thermal-comfort.
- To analyze the impact of climatic forces on built-form.
- To assess the effect of site, sun and wind in climate-responsive architecture.
- To design appropriate shelters for different climatic regions

LECTURE PLAN

WEEK	DATE	TOPIC OF CLASS LECTURE & DISCUSSION	TOPIC OF ASSIGNMENTSand CLASS EXERCISES / REMARKS
1	25-Jul-24	Introduction to Climate responsive architecture; Climate and Weather; Elements of Climate	Precourse Survey and discussion
2	01-Aug-24	Classification of Climates : Coppen Classification and Atkinsons Classification; Classification of Tropical Climates.	In Class Exercise: Sun Path Diagram
3	08-Aug-24	Human Comfort, Thermal Comfort Factors - Climate responsive Architecture	In Class Exercise: Sun Path Diagram
4	15-Aug-24	Closed Holiday - Independence Day	
5	22-Aug-24	Bioclimatic Chart; Psychrometric chart	Climate data sources - Introduction
6	29-Aug-24	Microclimate- Influencing factors; Site Selection and Planning,	Selection of city and building for Analysis
7	05-Sep-24	Site Planning - Building orientation and Form; Effect of landscaping	In Class Exercise: Sun Path Diagram - Obtaining climate data for a chosen city
8	12-Sep-24	Solar Controls - Horizontal and Vertical Shadow angles; design of shading devices	In Class Exercise: Sun Path Diagram - Finding Over Heated Period in a selected period
9	19-Sep-24	**Mid Semester Examination**	
10	26-Sep-24	Basic Principles of Natural Ventilation; Stack effect and thermally induced air currents; Factors affecting air flow	Inclass Exercise: Horiziontal and vertical sun angle and Shading Devices

11	03-Oct-24	Air flow around Buildings; Building Examples	Overview -Instruments available in Climatology lab for measuring Air temperature, Humidity etc. and Introduction to Assignment 1
12	10-Oct-24	Solar Control - Shading Devices ; Day lighting Principles.	Guest Lecture
13	17-Oct-24	Climate responsive design - Hot Dry Climate - Case Studies	In Class Exercise - Submission
14	24-Oct-24	Climate responsive design - Warm-Humid climate - Case Studies	Assignment I -Submission and Presentation.
15	31-Oct-24	Closed Holiday - Diwali	
16	07-Nov-24	Climate responsive design - Cold Climates and composite climates - Case Studies	Assignment I - Presentation.
17	14-Nov-24	Review of key concepts, Applications and case studies: Resources available for further learning.	

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

Reference Books:

1. Narashimhan; An Introduction to Building Physics.
2. O.H. Koenigsberger and others, Manual of Tropical Housing and Building – Part I – Climatic Design, Longmans , 1980.
3. M.Evans- Houising Climate & Comfort – Architectural Press, Londan, 1980.
4. B. Givoni, Man, Climate and Architecture, Applied Science, Banking Essex, 1992. Donald Watson and Kenneth Labs; Climatic Design – McGraw Hill Book Company – New York – 1983
5. Krishan, A et.al(2001), Climate Responsive Architecture: A Design Handbook For Energy Efficient Buildings, McGraw Hill

G. Shanmuga Priya

Cource Instructors:
Dr. Shanmuga Priya G

Head of Department