



Lok Jagruti Kendra University
University with a Difference

Diploma in Architectural Assistantship



Course Code: 025080202

**Climate Responsive
Architecture**

Programme / Branch Name			Diploma in Architectural Assistantship			
Course Name	Climate Responsive Architecture				Course Code	025080202
Course Type	HSSC	BSC	ESC	PCC	OEC	PEC

Legends: HSSC: Humanities and Social Sciences Courses

ESC: Engineering Science Courses

OEC: Open Elective Courses

BSC: Basic Science Courses

PCC: Program Core Courses

PEC: Program Elective Courses

1. Teaching and Evaluation Scheme

Teaching Hours / Week / Credits				Evaluation Scheme			
L	T	P	Total Credit	CCE	SEE (Th)	SEE (Pr)	TOTAL
4	0	0	4	50	50	-	100

Legends:

L: Lectures

T: Tutorial

P: Practical

CCE:

Continuous & Comprehensive Evaluation

SEE (Th):

Semester End Evaluation (Theory)

SEE (Pr):

Semester End Evaluation (Practical)

2. Prerequisites

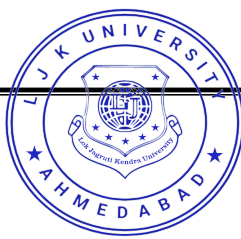
✓ No prerequisite required

3. Rationale

A very important component of sustainability in buildings has to do with the fact that they have to respond to the climate in which they are sited. This course aims to cover the various climates, mainly in India, and the implications of each for building design in these respective climates.

4. Objectives

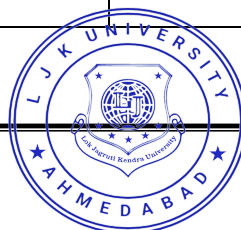
- ✓ Explain the role and importance of climate as one of the major determinants of built form.
- ✓ Identify climate as modifying factor of the built environment.
- ✓ Comprehend various climate-controlling devices.
- ✓ To understand climate and its impact on architectural design, fundamentals of climatology, and environmental studies.



5. Contents

Unit No.	Unit Name	Topics	Learning Outcomes	% Weightage	Hours
1.	Introduction to Climatology	1.1. Importance of Climate 1.2. Elements of Climate 1.3. Classifications & Characters of Tropical Climate 1.4. Macro & Micro Climate	<ul style="list-style-type: none"> To Study The Unique Characteristics of The Atmosphere in Controlling The Global Climate, Origin, Types of Climates, Causes. 	15	08
2.	Relation to Climate & Comfort	2.1. Temperature Standards 2.2. Thermal Comfort 2.3. Thermal Comfort in India	<ul style="list-style-type: none"> The Significance of Skin Temperature in This Context is Basis for a Measurement Device That Simulates The Human Skin Physically. 	15	08
3.	Lighting & Shading	3.1. Introduction 3.2. Daylight Factors 3.3. Daylight Analysis 3.4. Shading Device 3.5. Target Daylight Factors 3.6. Effect of Shading on Daylight 3.7. Artificial Lightning	<ul style="list-style-type: none"> It Helps to Understand Air Movement, Temperature, and Humidity at Comfortable Levels. 	20	16
4.	Ventilations	4.1. Natural Ventilation 4.2. Need of Natural Ventilation in Building 4.3. Philosophy & Functions of Natural Ventilation 4.4. Types of Natural Ventilation 4.5. Ventilation & Buildings 4.6. Design of Openings for Ventilation 4.7. Building Form & Orientations	<ul style="list-style-type: none"> It Helps to Understand Basic Climatic Conditions like Sun Path, Wind Direction Concerning Building Design. 	20	12
5.	Design Tools	5.1. Sun Path & Wind Direction Diagram 5.2. Passive Heating & Cooling Design Strategies 5.3. Settlement Patterns & Site Planning 5.4. Shelter or Form 5.5. Green Building	<ul style="list-style-type: none"> Day Lighting is The Practice of Placing Windows, Skylights, Other Openings, and Reflective Surfaces so That Sunlight Can Provide Lighting. 	28	14

Total Hours **56**



6. List of Practicals / Exercises

The practicals/exercises have been properly designed and implemented in an attempt to develop different types of skills, so that students can acquire the competencies/programme outcomes. Following is the list of practicals/exercises.

Sr. No.	Practicals / Exercises	Key Competency
1.	Visit different places with different climate to understand its architectural style.	Knowledge of different climatic zones
2.	Study of documentary related to architecture of a different climatic regions & Prepare a summary related to the study.	Knowledge of different climatic conditions to understand architectural style
3.	Study of documentary related to types of lighting in architecture and prepare a summary related to the study.	Knowledge of various types of lights in architecture
4.	Project-based on the application of various climatic zones	Designed to develop the understanding and application of various climatic zones in the given project

7. Suggested Specification Table for Evaluation Scheme

Unit No.	Unit Name	Distribution of Topics According to Bloom's Taxonomy					
		R %	U %	App %	C %	E %	An %
1.	Introduction to Climatology	25	25	50	00	00	00
2.	Relation to Climate & Comfort	20	25	30	25	00	00
3.	Lighting & Shading	10	40	40	10	00	00
4.	Ventilations	10	25	35	30	00	00
5.	Design Tools	10	40	40	10	00	00

Legends: R: Remembering U: Understanding
 App: Applying C: Creating
 E: Evaluating An: Analyzing

8. Textbooks

- 1) Climate Responsive Architecture-A design handbook for energy efficient Buildings by Arvind Krishan

9. Reference Books

- 1) Manual Of Tropical Housing by Otto.Koenigsberger
- 2) Design Primer for Hot Climate by Allan Konya
- 3) Design with Climate by Victor Olgyay
- 4) Man, Climate & Architecture by B.Givoni
- 5) Climatic Building Design by Donald Watson
- 6) Building in Hot Climates Building by Research Establishment

10. Open Sources (Website, Video, Movie)

- 1) <https://www.archdaily.com/tag/climate-responsive>
- 2) <https://www.hindawi.com/journals/mse/2018/5253102/>

