



# AMITY UNIVERSITY

— UTTAR PRADESH —

**Course Title: CLIMATE RESPONSIVE ARCHITECTURE**

**Course Code: ARCH215**

**Credit Units: 2**

**Level:UG**

L	T	P/S	SW/F W	TOTAL CREDIT UNITS
2	-	-	-	2

#	Course Title:--  <b>ARCHITECTURAL CLIMATOLOGY</b>	Weightage (%)
1	<b>Course Objectives:</b> To acquaint students to various concepts of climate analysis and its use in Architecture.  To familiarize students with human thermal comfort as an essential function of building.	
2	<b>Prerequisites:</b> NIL	
3	<b>Student Learning Outcomes:</b> To acquaint students to various concepts of climate that governs the design of the building model.	
<b>Course Contents / Syllabus</b>		
4	<b>Module I: Introduction</b>  Introduction to climate as a factor of human shelter, comfort and environment. Its classification as global, macro and micro climate. Preparation of sketches showing earth sun relationship and atmospheric depletion. Understanding maps showing ocean currents, wind pattern and wind shifts with respect to seasonal changes. Study of climatic zones along with traditional dwelling units.	10

5	<b>Module II: Climatic Zones</b>	20					
	Study of analysis of climatic zones (Hot –dry, Hot-Humid, Composite, Cold-dry, Cold-humid) in India along with data analysis. Study measurement and analysis of micro climatic elements and its use for a Designer.						
6	<b>Module III: Human thermal comfort &amp; Ventilation and air movement</b>	20					
	Study of heat exchange process between human body and its surroundings with respect to criteria of comfort. Study of heat exchange processes between building along with periodic change and the calculations required for heat exchange. Study of bio-climate charts its analysis and extension of comfort zone with respect to given data and relating this with (b) of unit 2. Requirement, size and position of openings, air flow pattern inside and outside buildings. Solar passive strategies						
7	<b>Module IV: Shading devices</b>	20					
	Method of recording the position of sun in relation to earth, solar chart, shadow angle protractor and its application in design of shading devices. Methods of calculating and designing of shading devices.						
8	<b>Module V: Day light &amp; Orientation</b>	30					
	Natural light, glare, day light factor and day lighting in tropics. Design strategies for Indian climate zones with respect to various climate zones, Orientation of buildings in relation to sun and wind.						
9	<b>Pedagogy for Course Delivery:</b>						
1	<b>Assessment/ Examination Scheme:</b>						
	<b>Theory (%)</b>	<b>Lab/Practical/Studio (%)</b>	<b>Total</b>				
	100%	NIL	100%				
	<b>Theory Assessment L/T</b>						
	<b>Components (Drop down)</b>	<b>A</b>	<b>HA</b>	<b>S</b>	<b>CT 1</b>	<b>CT 2</b>	<b>EE</b>
	<b>Weightage (%)</b>	05	10	15	10	10	50

**Text & References:*****Text:***

- Climatology Fundamentals and application – John R Mather
- Introduction to Climatology – Anthony Sealey.
- Climatic Design – Watson Donald.
- Sun, Wind and Light by G. Z. Brown.
- Climatically Responsible Energy Efficient Architecture by Arvindkrishnan.
- Housing Climate and Comfort by Martin Evans.\
- Manual of tropical housing and building, Koenisberger

***References:***

- Energy Efficient Housing by MiliMajumadar, Published by TERI.
- Climatologically & Solar data for India – T. N. Seshadry.
- Manual of tropical housing and building – Koenigsberger&Ingersol.
- Tropical Architecture – Maxwell Fry & Jane Drew
- Design Primer for Hot Climate – Allan Konya