

GUJARAT TECHNOLOGICAL UNIVERSITY**BRANCH NAME: B.Arch.****SUBJECT CODE: 2X35005****SUBJECT NAME: Climatology****2nd Year, 3rd SEMESTER****Type of course: B.Arch. (Climatology)****Prerequisite:** Design Studio 1 & 2**Rationale:**

To design climate responsive built, by offering a clear understanding of the various climatic zones and its climate responsive considerations in architectural design of building and built up areas.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks				Total Marks
L	T	P		Theory Marks		Practical Marks		
			ESE (E)	PA (M)	ESE (V)	PA (I)		
2	1	0	3	50	50	0	0	100

Content:

Sr. No.	Topics	Teaching Hrs.	Weightage %
1	Unit-I. Understand Climate and comfort Zones: <ul style="list-style-type: none">• Global climate factors• Elements of climate• Classification of climatic zones• Desirable conditions• Body heat exchange• Thermal balance• Psychometric chart• Human comfort conditions• Comfort chart, comfort zone, effective temperature, humidity, radiation, wind,• precipitation	12	40
2	Unit-II. Understand Climatic Zones: Global to Local Level	3	10
3	Unit-III. Understand Passive Means for various Climatic Zones <ul style="list-style-type: none">• Orientation• Massing/Form• Fenestration Design• Use of landscaping Features	9	30
4	Unit-IV. Sustainability aspects: <ul style="list-style-type: none">• Rating systems for climate responsive buildings• Understanding of models, strategies and codes related to energy efficient and climate responsive considerations in buildings.	6	20

Suggested Specification table with Marks (Theory):

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
00	20	20	20	20	20

Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create and above Levels (Revised Bloom's Taxonomy)

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Reference Books:

1. Manual of tropical housing by koenigsberger
2. SUN, WIND & LIGHT: Architectural Design Strategies by G.Z. Brown
3. Climate Responsive Architecture: A Design Handbook For Energy Efficient Buildings by Simos Yannas and Arvind Krishan and Steve Szokolay and Nick Baker

Course Outcome:

Sr.No	CO Statement	Marks % Weightage
Upon completion of this course, the students should be able to:		
1	Understand: students will be able to understand the relation between the climate and the building design.	25
2	Evaluate the site climate and corelate it with the built	25
3	Explain the effect on human comfort by applying the climatology	25
4	Propose effective solution for different climatic zones.	25

Term Work:

1. Student will prepare document on various climatic zones.
2. Documents related to climatic data observation of various locations
3. Sun path study for their selected project.

List of Tutorials:

- [Lecture 18 Fundamentals of Climate Responsive Buildings - I](#)
- [Lecture 19 Fundamentals of Climate Responsive Buildings - II](#)
- [Climate Data in Climate Consultant](#)
- <http://andrewmarsh.com/apps/releases/sunpath2d.html>
- <http://andrewmarsh.com/apps/staging/sunpath3d.html>

