



THE FEDERAL UNIVERSITY OF TECHNOLOGY, AKURE

Department of Architecture

ARC 309 – Environmental Control - Climate

COURSE PARTICULARS

Course Code: ARC 309

Course Title: Environmental Control- Climate

No. of Units: 2

Course Duration: Two hours of theory per week for 15 weeks.

Status: Compulsory

Course Email Address: arc309@gmail.com

Course Webpage:

Prerequisite: NIL

COURSE INSTRUCTORS

Arc. J. J. Adam

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And

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COURSE DESCRIPTION

This course introduces the student to the application of building climatology in design work. It covers basically, studies on how climatic factors affect human comfort; identification and analysis of climatic problems in the design process; sun position and its representation by solar charts; design of sun-shading devices and their construction using sun path diagram. Also the application of the computer in climatic surveys and the design process.

COURSE OBJECTIVES

The objectives of this course are to:

- introduce students to the relevance of environmental control (climatic essentially) considerations in the design activities; and
- also provide students with understanding of the interplay of Man-Shelter-Climate in architectural design processes.

COURSE LEARNING OUTCOMES / COMPETENCIES

Upon successful completion of this course, the student will be able to:

(Knowledge based)

- know and explain factors that undermine human comfort in the living environment;
- have understanding in the control of climatic elements in the design process;

(Skills)

- students to:
 - have a practical idea of how climatic data are taken and processed;
 - able to approach architectural design with climatic considerations;
 - attempt climatic analysis in design;

GRADING SYSTEM FOR THE COURSE

This course will be graded as follows:

Class Attendance	5%
Assignments	20%
Test(s)	15%
<u>Final Examination</u>	<u>60%</u>
<u>TOTAL</u>	<u>100%</u>

GENERAL INSTRUCTIONS

Attendance: It is expected that every student will be in class for lectures and also participate in all site (Climate Stations) visits. Attendance records will be kept and used to determine each person's qualification to sit for the final examination. In case of illness or other unavoidable cause of absence, the student must communicate as soon as possible with any of the instructors, indicating the reason for the absence.

Academic Integrity: Violations of academic integrity, including dishonesty in assignments, examinations, or other academic performances are prohibited. You are not allowed to make copies of another person's work and submit it as your own; that is plagiarism. All cases of academic dishonesty will be reported to the University Management for appropriate sanctions in accordance with the guidelines for handling students' misconduct as spelt out in the Students' Handbook.

Assignments and Group Work: Students are expected to submit assignments as scheduled. Failure to submit an assignment as at when due will earn you zero for that assignment. Only under extenuating circumstances, for which a student has notified any of the instructors in advance, will late submission of assignments be permitted.

Code of Conduct in Lecture Rooms and Laboratories: Students are prohibited from engaging in other activities (such as phoning, texting, watching videos, *etc.*) during lectures.

READING LIST

¹Givioni, B. (1976). *Man, Climate and Architecture*. Applied Science Publishers Ltd., London.

¹Evans, M. (1980). *Housing Climate and Comfort*. The Architectural Press, London.

¹Ogunsote, O. O. (1991). *Introduction to Building Climatology: A Basic Course for Architectural Students*. Ahmadu Bello University Press.

Legend

- 1- Available in the University Library
- 2- Available in Departmental/School Libraries
- 3- Available on the Internet.
- 4- Available as Personal Collection
- 5- Available in local bookshops.

COURSE OUTLINE

Week	Topic	Remarks
1	Introduction and Course Overview <ul style="list-style-type: none"> • Climate / Weather • Nature and Scope of Climatology 	During this first class, the expectation of the students from the course will also be documented.
2	Climatic Elements	
3 & 4	The Thermal Environment <ul style="list-style-type: none"> • Thermal Comfort • Comfort zone • Bioclimatic charts 	
5 & 6	Heat Losses and Heat Gains	
7 & 9	Sun and the Design process <ul style="list-style-type: none"> • Principles of solar control in buildings • Sun-shading devices 	
		MID-SEMESTER TEST
10 & 11	Wing effects and air flow patterns in buildings	

13	Computer applications and climatic surveys and the design process	
14 & 15	ASSESSMENT & REVISION(S)	This is the period preceding the semester examination. At this time, evaluation will be done to assess how far the students' expectations for the course have been met and final class assessment.