2023
TP-153

Course Specification
(Bachelor)

Course Title:	Climate, Environment and Architecture
Course Code:	ARCH 130
Program:	Architecture
Department:	Architecture
College:	Architecture and Planning
Institution:	Qassim University

1. Course Identification

Course general Description:

This course aims to enable students to understand the direct relationship between the climate (macro and micro) and human comfort. A brief introduction to climatology and weather deviations. Explaining the techniques and tools of analyzing and controlling the macro and micro climatic elements affecting the building design and materials selections.

Course Main Objective(s):

By the end of this course the students will be able to:

- To develop student's understanding of the relation between micro and macro climate and human comfort
- To promote student's knowledge about sun path, solar angles, shadow angles, different types shading masks and devices, and principles of natural daylighting design.
- To promote student's knowledge about the building thermal behavior and main building materials determinants (U-value, R-value, SHGC, VT, etc.)
- To increase student's awareness about tools and techniques of passive design to achieve indoor thermal comfort and minimize dependencies of traditional energy sources as part of sustainability objectives.
- To develop student's skills in analyzing climatic elements using Mahoney tables, using and extracting information from solar charts, shadow angle protractor, ET chart, Givoni's chart, Olgey's chart, and psychometric chart.

2. Course Learning Outcomes (CLOs)

Code	Course Learning Outcomes	Code of CLOs aligned with program
1.0	**Knowledge and understanding**	
1.1	Define appropriate passive treatments techniques for different climate zones.	K-1
1.2	Demonstrate appropriate shading devises based on window's orientation and climate characteristics.	S-2
1.3		
2.0	**Skills**	
2.1	Analyze climatic elements, characteristics and identify specific design solutions for architectural project's site	S-2
2.2		

Code	Course Learning Outcomes	Code of CLOs aligned with program
3.0	**Values, autonomy, and responsibility**	
3.1		

3. Students Assessment Activities

No	Assessment Activities *
1.	Quizzes, Practical assignments
2.	Mid-term exam
3.	Project (Site Analysis)
4.	Final Exam

4. Learning Resources and Facilities

Essential References	- Norbert Lechne (2014). Heating, Cooling, Lighting-Sustainable Methods for Architects - Fourth Edition. WILEY - Steven V Szokolay. (2008). Introduction to Architectural Science – The Basics of Sustainable Architecture - Second Edition. Elsevier - Mark DeKAY and G, Z, Brown. (2014). Sun, Wind, And Light: Architectural Design Strategies- Third Edition. WILEY - Victor Olgyay. (2015). Design with Climate: Bioclimatic Approach to Architectural Regionalism. Princeton University Press; Expanded edition.
Supportive References	
Electronic Materials	- http://www.energy-design-tools.aud.ucla.edu/climate-consultant/request-climate-consultant.php - https://energyplus.net/weather - http://andrewmarsh.com/software/
Other Learning Materials	- The students should read other scientific references and course related topics form periodical journals and relevant websites.