COURSE SYLLABUS						
Course Title	**Course Code**	**Semester**	**Course Hour/Week**		**Credit**	**ECTS**
Environmental Factors in Architectural Design	ARCH241	3	**Theory** 3	**Practice** 0	3	3
Course Type	Compulsory Courses	Department Elective	Faculty Elective	University Elective	CoHE (YÖK) Compulsory	Other
	x					
Level of Course	Associate Degree (Short Cycle)		Undergraduate (First Cycle)		Graduate / Doctoral (Second / Third Cycle)	
			x			

Language of Instruction	English

Course Instructor(s)	Asst. Prof. Dr. Salar Salah Muhy Al-Din	E-mail:salar.aldin@arucad.edu.tr Office: TI- OFF 07
Course Objectives	The course aims to give the student the climatic principles effective in the design process. The main emphasis is given on the definition of the problems of the main climatic zones around the world and the possible design solutions for those problems.	
Course Learning Outcomes	**Students will be able to:**	**Teaching Methods** / **Evaluation Methods**
	Define and list key climatic principles, environmental factors, and basic terms related to architectural design, including climatic zones and their associated problems	Direct instruction technique, Preliminary preparation assignments / Midterm Exam
	Explain and interpret the relationships between design, environment, nature, society, mankind, and space, summarizing real-life environmental design challenges.	Panel discussions, Narrative building activities / Midterm Exam

	Demonstrate and apply environmental design tools such as wind roses, sun-path diagrams, and bioclimatic charts to address climatic issues in building design.	Scenario-based assignments, Step-by-step exercises	Midterm Exam, Final Project Submission
	Examine and classify passive design strategies for heating, cooling, lighting, and acoustics, comparing their effectiveness in different climatic contexts.	Fieldwork simulations, Critique rounds	Mid-term Project Evaluation, Final Project Evaluation
	Develop and integrate innovative solutions that combine theory, technology, and practice to create sustainable environmental designs from object to territorial scales.	Model-building exercises, Collaborative projects	Final Project Submission
	Assess and critique architectural designs for thermal comfort, renewable energy integration, and acoustic performance, justifying recommendations based on environmental principles.	Peer review, reflective Evaluation	Final Project Submission
Course Content	This course provides a foundation for the design of the environment from the scale of the object to the building and to the larger territory. It engages with real-life problems that affect products, buildings, and cities across the world and requires an understanding of what makes a good environment for inhabitants. The outcome of this work will be the demonstration of: • active participation in class lectures • understanding different approaches to design with 'nature space' (where mankind can survive and live) as the centre • designing and producing innovative solutions on how space and objects are related to the environment.		

COURSE OUTLINE/SCHEDULE			
Week	**Topic**	**Implementation (theory/practice)**	**Required Reading, Preliminary preparation**
1	Introduction of the course topics and basic terms.	T	Handouts for reading

2	Climatic Zones and Outside Environmental Aspects	T	Handouts for reading
3	Environmental Design Basic tools: Wind- rose, Sun-Path, and Bioclimatic Charts.	T	See required readings
4	Heat Exchange of Buildings and Materials' Thermal Characteristics	T	
5	Heating\ Cooling Passive Design Strategies	T	See required readings
6	Glazing Orientation and Renewable Energy System in Buildings	T	See required readings
7	Salutogenic Architecture - Indoor Thermal Comfort	T	
8	Lighting Foundation in Design and Midterm	T	
9	Lighting Design Strategies in Architecture	T	See required readings
10	Acoustic Environment	T	**See required readings**
11	Acoustic Zoning	T	See required readings
12	Acoustic Zoning	T	See required readings
13	Acoustic Passive Design Strategies	T	See required readings
14	Acoustic Passive Design Strategies	T	See required readings
15	Critiques on the Final Project	T	
16	Final Exam Week		

Required Course Material(s) / Reading(s)/ Text Book(s)	Lechner, N. (2015). Heating, Cooling, Lighting: sustainable design methods for architects. Hoboken, New Jersey: Wiley. ISBN: 9781118582428, **Call Number: REF TH7222. L33 2015.** Maekawa, Z. (2019). Environmental and architectural acoustics. Abingdon, Oxon; New York, NY Spon Press. **Call number: TH 1725.M345 2019.**
Recommended Course Material(s)/ Reading(s) /Other	Ebrahim, Y. (2022, November 25). Environmental architecture: Environmentalism, environmental design and planning issues [Conference presentation]. Lecture 4B, Course BAR701, University of Nairobi. https://doi.org/10.13140/RG.2.2.35996.77442 Konstantinou, T., & Prieto Hoces, A. (2018). Environmental Design Principles for the Building Envelope and More _:

	Passive and Active Measures. In T. Konstantinou, N. Cukovic, & M. Zbasnik (Eds.), Energy - Resources and Building Performance (pp. 147-180). (Reviews of Sustainability and Resilience of the Built Environment for Education, Research and Design). TU Delft OPEN Publishing. https://boo

ASSESSMENT		
Learning Activities	**NUMBER**	**WEIGHT in %**
Mid-Term	1	40
Quiz	-	-
Assignment	-	-
Portfolio	-	-
Project	-	-
Field Study	-	-
Presentation / Seminar	-	-
Studio Practice	-	-
Other	-	-
Contribution of Final Examination/Final Project/ Dissertation to the Final Grade	1	60
TOTAL		100

CONTRIBUTION OF COURSE LEARNING OUTCOMES TO PROGRAMME LEARNING OUTCOMES						
No	**PROGRAMME LEARNING OUTCOMES**	Level of Contribution (1- lowest/ 5- highest)				
		1	2	3	4	5
1	Understand architectural history, theory, and cultural heritage, including the relationship between local/vernacular traditions and global architectural discourse.	X				
2	Understand the technical knowledge and the principles of structural systems, building technology, environmental performance, and construction processes as integrated components of architectural design.					X

3	Comprehend sustainability, ecological sensitivity, and climate-responsive design principles and their application across different scales of the built environment.					X
4	Recognize the legal, ethical, and professional frameworks governing architectural practice, including relevant codes, standards, universal ethical values, and the principles of project management and cost estimation.	X				
5	Apply creative and critical design thinking to develop holistic architectural solutions that respond to spatial, environmental, cultural, and social challenges at local, national, and global scales.				X	
6	Produce professional drawings, models, technical documentation, and digital/parametric visualizations that effectively communicate architectural proposals at all stages of design.			X		
7	Conduct systematic, evidence-based research and apply critical evaluation methods to inform and validate design decisions throughout the design process.				X	
8	Integrate interdisciplinary knowledge — spanning art, engineering, ecology, and social sciences — to produce innovative and contextually sensitive design outcomes.				X	
9	Demonstrate professional and ethical responsibility, with sensitivity to environmental sustainability, socio-cultural diversity, and the well-being of communities served by architectural practice.				X	
10	Collaborate effectively in interdisciplinary and intercultural teams, demonstrating leadership, communication, and project management competencies in design and professional contexts.			X		
11	Communicate architectural ideas persuasively and clearly in verbal, visual, and written form to professional, academic, client, and public audiences.		X			
12	Engage in continuous self-reflection, lifelong learning, and active contribution to the evolving architectural profession at local, regional, and international levels.		X			

ECTS / STUDENT WORKLOAD				
ACTIVITIES	**NUMBER**	**UNIT**	**HOUR**	**TOTAL (WORKLOAD)**
Course Teaching Hour (X weeks * total course hours)	15	1	3	45
Preliminary Preparation and self- study	-	-	-	-
Mid-Term	1	1	10	10
Quiz	-	-	-	-

Assignment	-	-	-	-
Portfolio				
Project	1	1	10	10
Field Study	-	-	-	-
Presentation / Seminar	-	-	-	-
Studio Practice	-	-	-	-
Final Examination/ Final Project/ Dissertation	1	1	10	10
Other	-	-	-	-
TOTAL WORKLOAD				**75**
TOTAL WORKLOAD / 25				3
ECTS				**3**

ETHICAL RULES WITH REGARD TO THE COURSE
Plagiarism Disclaimer Detected and undetected plagiarism is a serious offense at any time and can have devastating effects on your degree results and future professional life. Plagiarism is easy to avoid if you ensure that you properly identify and acknowledge your sources and do not copy directly from visual examples, designs, or notes that have themselves been taken word-for-word from your sources.

	SDG 1: No Poverty	
	SDG 2: Zero Hunger	
	SDG 3: Good Health and Well-Being	X
	SDG 4: Quality Education	
	SDG 5: Gender Equality	
	SDG 6: Clean Water and Sanitation	
	SDG 7: Affordable and Clean Energy	X
	SDG 8: Decent Work and Economic Growth	
	SDG 9: Industry, Innovation and Infrastructure	

	SDG 10: Reduced Inequalities	
	SDG 11: Sustainable Cities and Communities	X
	SDG 12: Responsible Consumption and Production	
	SDG 13: Climate Action	X
	SDG 14: Life Below Water	
	SDG 15: Life on Land	X
	SDG 16: Peace, Justice and Strong Institutions	
	SDG 17: Partnership for the Goals	X

ASSESSMENT DETAILS AND EVALUATION CRITERIA:	
Final grades will be determined based on the course learning activities and the assessment details for the final examination or project, as outlined below, in accordance with the University's Education and Examination Regulations. Students are required to attend at least 70% of the classes. The maximum allowable absenteeism is 30%. Midterm assessment: 40% and Final assessment: 60%	
PREPARED BY	Asst. Prof. Dr. Salar Salah Muhy Al-Din
UPDATED	07-10-2025
APPROVED	