

FACULTY OF ARCHITECTURE / DEPARTMENT OF ARCHITECTURE

UNIVERSITY ELECTIVE COURSE DESCRIPTION FORM

Department / Division	Architecture						
Course Name	Artificial Intelligence Based Project						
Course Semester	Fall	X		Spring			
Course Language	Turkish	X		English			
Course Credit	Theoretical	2		Application	0		Total Credit 2
Course AKTS	3						
Course Learning Type	Formal Education						
Course Objectives	To understand the basics of artificial intelligence integrated design in the building design process.						
Course Content	General information about the relationship between artificial intelligence and architecture, contributions of artificial intelligence applications in the project process, Artificial intelligence programmes used in architectural form design process, the place of machine learning in artificial intelligence based design, Artificial Neural Networks, Algorithmic design in building performance analysis, Artificial intelligence based building performance analyses.						
Course Prerequisites	-						
Course Instructors	Lec. Mustafa Serhan ÜNLÜTÜRK			mail : serhan.unluturk@balikesir.edu.tr			
Course Assistants	-			mail :-			
Course Internship Status	-						
Course Resources	- Çınarer, GÖKALP (2021). Yapay Zeka ve Dijital Teknoloji. - Liang, X. (2020). <i>Ascend AI Processor Architecture and Programming: Principles and Applications of CANN</i>. Elsevier. - Chaillou, S. (2022). <i>Artificial intelligence and architecture: from research to practice</i>. Birkhäuser. - Chen, L., Penney, D., & Jiménez, D. (2022). <i>AI for computer architecture: principles, practice, and prospects</i>. Springer Nature. ISO 690						
Course Structure	Science Field Knowledge						
Planned Learning Activities and Methods	Theoretical expression and practice						
Course Evaluation Criteria			Course AKTS Calculation Content				
Semester Studies	Count	Contribution (%)	Activity	Count	Duration	Total Workload (Hour)	
Midterm Exam	1	%40	Course Duration	14	3	42	

Evrak Tarih ve Sayısı: 27.03.2025-E.502466			Quiz	Out of Class Working Time	8	1	90
			Homework	Midterm Exams	2	8	16
			Attendance	Final Exam	2	12	24
			Application	Total Workload: 90			
			Project	AKTS Credit: 3			
			Final Exam	1	%60		
Learning Outcomes of the Course			Explains the relationship between artificial intelligence and architecture. Explains artificial intelligence integrated design process. Explains the use of artificial intelligence in building performance analyses. Explains the use of artificial intelligence in building form development. Explains machine learning algorithms in artificial intelligence integrated design process.				
Course Subjects							
Week	Subject			Preliminary Preparation	Documents		
1.Week	Basic concepts of artificial intelligence			Reading on the subject	Mustafa Serhan ÜNLÜTÜRK lecture notes		
2. Week	Architecture and artificial intelligence			Reading on the subject	Mustafa Serhan ÜNLÜTÜRK lecture notes		
3. Week	Architectural project process and the place of artificial intelligence in this process			Reading on the subject	Mustafa Serhan ÜNLÜTÜRK lecture notes		
4. Week	Artificial intelligence tools used in architectural design			Reading on the subject	Mustafa Serhan ÜNLÜTÜRK lecture notes		
5. Week	Machine learning algorithms			Reading on the subject	Mustafa Serhan ÜNLÜTÜRK lecture notes		
6. Week	Artificial Neural Networks			Reading on the subject	Mustafa Serhan ÜNLÜTÜRK lecture notes		
7. Week	Use of artificial intelligence in architectural form development and examples			Reading on the subject	Mustafa Serhan ÜNLÜTÜRK lecture notes		
Midterm Exam	Exam Week			Exam Week	Exam Week		
8. Week	Use of artificial intelligence in architectural plan development			Reading on the subject	Mustafa Serhan ÜNLÜTÜRK lecture notes		
9. Week	Python based architectural plan development applications			Reading on the subject	Mustafa Serhan ÜNLÜTÜRK lecture notes		
10. Week	Python based architectural plan development applications			Reading on the subject	Mustafa Serhan ÜNLÜTÜRK lecture notes		
11. Week	Artificial intelligence in building performance analyses			Reading on the subject	Mustafa Serhan ÜNLÜTÜRK lecture notes		
12. Week	Algorithmic design in building performance analyses			Reading on the subject	Mustafa Serhan ÜNLÜTÜRK lecture notes		
13. Week	Algorithmic design in building performance analyses			Reading on the subject	Mustafa Serhan ÜNLÜTÜRK lecture notes		
14. Week	Advantages and disadvantages of AI-based project development			Reading on the subject	Mustafa Serhan ÜNLÜTÜRK lecture notes		
Final Exam	Exam Week			Exam Week	Exam Week		

Contribution of the Course to Program Outcomes	To have the ability to define, formulate and solve problems. To have the knowledge and skills to design, produce and manage projects. To be able to develop rational and creative solutions to design problems. To be able to use information technologies effectively in professional practices.
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