COURSE SYLLABUS						
Course Title	**Course Code**	**Semester**	**Course Hour/Week**		**Credit**	**ECTS**
Advanced Technologies in Design	INDD308	2	**Theory** 2	**Practice** 2	3	4
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)	Inst. Milad Ghelichkhani	E-mail: milad.ghelichkhani@arucad.edu.tr Office:
Course Objectives	This course aims to develop both a critical and practical understanding of advanced design technologies such as Artificial Intelligence (AI), Virtual Reality (VR), and digital modeling tools. It encourages students to rethink technology not merely as a technical instrument, but as a mediator that reshapes perception and changes the human–world relationship. The course seeks to help students consciously position themselves as designers throughout a technologically mediated design process, understanding technology as an extension of human creative agency rather than a replacement for it. While engaging with digital tools and immersive environments, students explore how human-centric experience can be maintained and articulated throughout a technologically driven design process.	
Course Learning Outcomes	**Students To Do:**	**Teaching Methods** / **Evaluation Methods**
	Analyze technology as a mediator that reshapes human perception and the human–world relationship.	Interactive discussions, guided questioning, case-based reflection. / Midterm Presentation, Written Reflection, Studio Practice.
	Apply conscious use of AI as extensions of	reflective dialogue, Studio-based design / Midterm Project, Final Project.

	human creative agency rather than replacements for it, Critically position themselves as human designers in relation to AI and advanced digital design systems.	development, AI experimentation sessions.	
	Demonstrate practical skills in using AI, VR, and digital modeling tools as part of an iterative creative design process.	Hands-on studio practice, AI experimentation sessions, VR workshops.	Midterm Project, Final Project.
	Design immersive virtual atmospheres capable of communicating specific human experiences.	Digital modeling workshops, VR integration sessions, studio critiques.	Final Project, Peer Evaluation.
	Integrate physical prototyping, AI-assisted exploration, and digital modeling within a coherent design workflow.	Studio-based making, guided iteration, feedback sessions.	Midterm Project, Final Project.
Course Content	This course introduces students to advanced digital design environments through a structured combination of theoretical inquiry and studio-based experimentation. It explores Artificial Intelligence (AI), Virtual Reality (VR), and digital modeling tools within the context of contemporary design practice. The course is organized around a progressive design project in which students move from physical prototyping to AI-assisted exploration, digital modeling, and immersive virtual realization. Through iterative experimentation, students develop practical skills in using AI platforms, VR tools, and digital design software as part of a coherent creative workflow. Emphasis is placed on understanding how technological tools mediate the experience of the design process. Students engage in hands-on exercises, reflective discussions, virtual sculpting and immersive observation sessions to develop a deeper and more conscious understanding of technological mediation in the design process.		

COURSE OUTLINE/SCHEDULE			
Week	**Topic**	**Implementation (theory/practice)**	**Required Reading, Preliminary preparation**
1	Introduction to the course. Rethinking Technology as mediator of human-world relation.	T	No preliminary preparation.
2	Technology, Perception, and the Human–World Relationship.	T-P	Short reflection exercise.
3	Positioning the Designer in the Age of AI.	T-P	Visual research on AI & creativity.
4	Project Introduction: Emotion, Intention & Technological Mediation.	T-P	Select emotional concept.
5	Concept Research Presentation & Discussion.	P	Prepare visual references.
6	Physical Prototyping: Translating Human Intention into Form (Clay Modeling).	P	Bring modelling materials.
7	Refinement of Physical Prototype & Critical Review.	P	Develop refined form.
8	AI as Creative Extension: Iteration and Formal Expansion and Midterm.	T-P	Photograph prototype.
9	Midterm Review: Concept + Physical + AI Development.	P	AI-generated variations.
10	Human ↔ AI Iterative Development Session.	P	Midterm Submission.
11	Digital Sculpting and Modeling Workflow.	P	Software preparation.
12	Advanced Model Development: Form Refinement & Structural Clarity.	P	Continue modelling.
13	Material, Light & Atmospheric Construction.	T-P	Lighting development.
14	Integration into Immersive VR Environment & Testing.	P	Prepare VR scene.
15	Pre-Final Critique: Immersive Testing & Peer Evaluation.	P	Refine VR project.
16	Final Presentation: Immersive Experience + Written Reflection.	P	Prepare to final submission.
17	**FINAL EXAM**		

Required Course Material(s) / Reading(s) / Text Book(s)	• Rosenberger, R., & Verbeek, P.-P. (Eds.). (2015). *Postphenomenological investigations: Essays on human-technology relations*. Lexington Books. Call Number: T14 .P576 2015 • Duin, A. H., & Pedersen, I. (2023). *Augmentation technologies and artificial intelligence in technical communication*. Routledge. Call Number: T10.5 .D85 2023
Recommended Course Material(s) / Reading(s) / Other	• Ihde, D. (1990). *Technology and the lifeworld: From garden to earth*. Indiana University Press. ISBN: 978-0253205605 • Picon, A. (2010*). Digital culture in architecture: An introduction for the design professions.* Birkhäuser. ISBN: 978-3764386740 • Verbeek, P.-P. (2005). *What things do: Philosophical reflections on technology, agency, and design*. Penn State University Press. ISBN: 978-0271025391. DOI: https://doi.org/10.1515/9780271033228 • Bimber, O., & Raskar, R. (2005). *Spatial augmented reality: Merging real and virtual worlds. A K Peters*. ISBN: 978-1568812304 • Ong, S. K., & Nee, A. Y. C. (Eds.). (2004). *Virtual and augmented reality applications in manufacturing.* Springer. ISBN: 978-1852337964. DOI: https://doi.org/10.1007/978-1-4471-3873-0

ASSESSMENT		
Learning Activities	**NUMBER**	**WEIGHT (%)**
Mid-Term	1	30
Quiz		
Assignment		
Portfolio		
Field Study		
Presentation / Seminar		
Studio Practice	1	20
Other (class participation)		

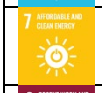
Contribution of Final Examination/Final Project/ Dissertation to the Final Grade	1	50
TOTAL	3	100

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 knowledge of industrial design principles, design methodologies, history, aesthetics, form & function and product development processes.				x	
2	Explain the properties of materials, manufacturing technologies, and production methods used in industrial product design.			x		
3	Understand ergonomics, and user-centered design concepts in product development.			x		
4	Understand sustainability principles, environmental impacts, and life-cycle considerations in industrial design.				x	
5	Analyze design problems, user needs, and market requirements to develop appropriate product design solutions.			x		
6	Generate creative product concepts using sketching, ideation techniques, and visual exploration methods.					x
7	Develop product designs using digital tools, 3D modelling, and rendering software.					x
8	Develop prototypes or models to evaluate product functionality, usability, and aesthetics.					x
9	Communicate design ideas effectively through sketches, technical drawings, models, and professional presentations.					x
10	Work effectively in multidisciplinary teams during product design and development processes.				x	
11	Manage design projects considering production constraints, market needs, and economic feasibility.			x		
12	Demonstrate professional responsibility, ethical awareness, and commitment to sustainable design practices.		x			

ECTS / STUDENT WORKLOAD				
ACTIVITIES	**NUMBER**	**UNIT**	**HOUR**	**TOTAL (WORKLOAD)**
Course Teaching / Practice Hour (weeks/total course hours)	16	1	4	64
Self-study	11	1	1	11
Midterm Exam	1	1	5	5
Quiz				
Portfolio				
Field Study / Project				
Final Exam	1	1	5	5
TOTAL WORKLOAD				85
TOTAL WORKLOAD / 25				3,4
ECTS				4

ETHICAL RULES WITH REGARD TO THE COURSE
Plagiarism Disclaimer Detected and undetected plagiarism is a serious offence at any time and it could have devastating effects on your degree result and future professional lives. Plagiarism is easy to avoid if you make sure to identify and acknowledge your sources thoroughly and do not copy directly from visual examples, designs, or notes that have in turn been taken word for word from your sources.

	SDG 1: No Poverty	
	SDG 2: Zero Hunger	
	SDG 3: Good Health and Well-Being	

	SDG 4: Quality Education	x
	SDG 5: Gender Equality	x
	SDG 6: Clean Water and Sanitation	
	SDG 7: Affordable and Clean Energy	
	SDG 8: Decent Work and Economic Growth	
	SDG 9: Industry, Innovation and Infrastructure	x
	SDG 10: Reduced Inequalities	
	SDG 11: Sustainable Cities and Communities	x
	SDG 12: Responsible Consumption and Production	
	SDG 13: Climate Action	
	SDG 14: Life Below Water	
	SDG 15: Life on Land	
	SDG 16: Peace, Justice and Strong Institutions	x
	SDG 17: Partnership for the Goals	

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%.

Studio Practice: 20%
Midterm: 30%
Final: 50%

PREPARED BY	Inst. Milad Ghelichkhani.

UPDATED	February 2026.
APPROVED	