COURSE SYLLABUS						
Course Title	**Course Code**	**Semester**	**Course Hour/Week**		**Credit**	**ECTS**
Fab Lab	INDD210	2	**Theory** 1	**Practice** 2	2	2
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)	Dr. Sarvenaz Pakravan	E-mail: Sarvenaz.pakravan@arucad.edu.tr Office: TIOFF20
Course Objectives	During the course, the students will learn more about, Fab-Labs, makers, and DIY movements. Sustainability, recycling, upcycling as well as ready-made design will be core topics of the course. The students will be asked to work with 3D printing and CNC machines and/or Arduino and Raspberry technology and/or more traditional tools related to the work of wood, metals, and fabrics.	
Course Learning Outcomes	On successful completion of this module, students will master the following skills and knowledge.	
	Students To Do:	**Teaching Methods** / **Evaluation Methods**
	Design mock-ups and construct pre-print presentation materials that reflect high-quality production standards.	Studio sessions with hands-on mock-up crafting and material exploration. / Mid-term and Final Project Evaluation

	To develop technological and problem-solving skills.	Direct instruction technique Step-by-step presentation building exercises	Mid-term and Final Project Evaluation
	Analyze and adapt the transformation of a design idea into a tangible form – product not only using Lab computer-controlled technologies.	Direct instruction technique Scenario-based assignments	Mid-term and Final Project Evaluation
Course Content	This course provides students with an opportunity to use state-of-the-art equipment to design, fabricate, and test products. During the course, students develop technological, problem-solving, and hands-on skills.		

COURSE OUTLINE/SCHEDULE			
Week	**Topic**	**Implementation (theory/practice)**	**Required Reading, Preliminary preparation**
1	Introduction to the course: FabLabs, makers, DIY.	T	No need for preliminary preparation.
2	Fab Labs for Industrial Design case studies presentation. Topic presentation about Exercitation 1: Smart Bicycle booth (a modular, multipurpose piece of stand to be realized through lazer cut and 3Dprinted joineries).	T-P	No need for preliminary preparation.
3	Exercitation 1: students presentations (concept, preliminary sketches).	T-P	See the required books.
4	Exercitation 1: students presentation (relevant case studies according to their concepts and concept finalization).	T-P	See the required books.
5	Exercitation 1: students presentation (prototyping and	T-P	

	modeling for the digital or manual fabrication).		See the required books.
6	Exercitation 1: students presentation (prototyping and modeling for the digital or manual fabrication).	P	See the required books.
7	Exercitation 1: students presentation (digital or manual fabrication) and final review.	P	No need for preliminary preparation.
8	Topic presentation about exercitation and Midterm.	T	Midterm submission.
9	Topic presentation about exercitation.	T	See the required books.
10	Exercitation 2: students presentation (relevant case studies according to their concepts).	T-P	See the required books.
11	Exercitation 2: students presentations (concept, preliminary sketches).	T-P	See the required books.
12	Exercitation 2: students presentations (concept, preliminary sketches).	T-P	See the required books.
13	Exercitation 2: students presentation (concept finalization).	P	See the required books.
14	Exercitation 2: students presentation (prototyping and modeling for digital fabrication).	P	No need for preliminary preparation.
15	Exercitation 2: students presentation (digital fabrication).	P	No need for preliminary preparation.
16	Exercitation 2: students presentation (digital fabrication)/review.	P	No need for preliminary preparation.
17	**FINAL EXAM**		

Required Course Material(s) / Reading(s)/ Text Book(s)	• Bosqué, C., & Troxler, P. (2017). *Fab Lab: Revolution field manual*. Niggli. Edited/contributed by Massimo Menichinelli. Call number:TS155.63 .M46 2017 • Walter-Herrmann, J., & Büching, C. (Eds.). (2014). *FabLab: Of machines, makers and inventors.* Transcript Verlag. Call number: TS155.63 .M46 2014
Recommended Course Material(s)/ Reading(s) /Other	• Mari, E. (2002). *Autoprogettazione?* Corraini. ISBN: 978-8887942675 • Rohrbacher, G., Filson, A., Kaziunas France, A., & Young, B. (2017). *Design for CNC: Furniture projects and fabrication technique*. Maker Media. ISBN: 978-1457187384

ASSESSMENT		
Learning Activities	**NUMBER**	**WEIGHT in %**
Mid-Term	1	40
Project		
Field Study		
Presentation / Seminar		
Studio Practice		
Other		
Contribution of Final Examination/Final Project/ Dissertation to the Final Grade	1	60
TOTAL	2	100

Industrial Design Programme + LO

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 modeling, 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 Hour (X weeks * total course hours)	16	1	3	48
Preliminary Preparation and self- study	1	1	5	5
Mid-Term	1	1	3	3
Final Examination/ Final Project/ Dissertation	1	1	3	3
Other				
TOTAL WORKLOAD				59
TOTAL WORKLOAD / 25				2,36
ECTS				2

ETHICAL RULES WITH REGARD TO THE COURSE
Plagiarism Disclaimer Detected and undetected plagiarism is a serious offense 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	x
	SDG 3: Good Health and Well-Being	x
	SDG 4: Quality Education	x
	SDG 5: Gender Equality	x

	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	x
	SDG 10: Reduced Inequalities	
	SDG 11: Sustainable Cities and Communities	x
	SDG 12: Responsible Consumption and Production	x
	SDG 13: Climate Action	
	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: 40% Final: 60%	
PREPARED BY	Asst. Prof. Dr. Martina Callegaro, Dr. Sarvenaz Pakravan.
UPDATED	February 2024, March 2026.
APPROVED	