COURSE SYLLABUS						
Course Title	**Course Code**	**Semester**	**Course Hour/Week**		**Credit**	**ECTS**
Studio 3	INDD201	1	**Theory** 2	**Practice** 8	6	9
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)	Instr. Mojtaba Karimnezhad	E-mail: mojtaba.nezhad@arucad.edu.tr Office:
Course Objectives	The aim of this unit is to understand and develop students understanding and practical skills regarding the relationship between production and manufacturing. After the Materials Production and Process course, students will actively participate in material-based experimentation. The studio takes students through a number of key studio-based explorations that underpin and develop an understanding of the inter-relationship between a desired physical outcome and the manner of its production. This includes an appreciation of the core principles of manufacturing methods and the impact on the design of an object due to materiality. Students are encouraged to apply theoretical learning with an experimental approach to problem-solving. Students are encouraged to show their projects through high-fidelity prototypes, using what learnt in the previous semester, prototyping course. Project work is presented in digital and folio format, and documented for production. Final design proposals are also undertaken in detailed model or prototypical form where appropriate. Sketches, technical drawings and prototypes are presented in digital and original versions accordingly.	

	Students To Do:	Teaching Methods	Evaluation Methods
Course Learning Outcomes	Analyze the construction of existing objects and re-purpose them based on structural and material characteristics.	Object teardown workshops, guided studio tasks, demonstrations	Studio task submission, reflective analysis report
	Design products that meet specified physical and functional criteria using appropriate industrial production processes.	Technical demonstrations, supervised prototyping sessions	Design proposal + functional prototype evaluation
	Explain the relationship between rational design processes and creative/inspirational elements in industrial design.	Lectures, case studies, discussions	Short written reflection, critique participation
	Evaluate design tasks by identifying, analyzing, and interpreting functional, aesthetic, and contextual requirements.	Concept development sessions, peer critique, instructor feedback	Concept documentation portfolio
	Produce detailed manual sketches and develop accurate CAD-based technical drawings.	Drawing workshops, CAD tutorials, drafting exercises	Sketchbook review + technical drawing set submission
	Construct low- and high-fidelity prototypes using appropriate materials and fabrication techniques.	Workshop practice, model-making assistance, iterative prototyping	Prototype submissions, studio critique, final presentation

Course Content	**Complex Design.** The unit's projects are designed to boost materials and prototyping exploration. Through hands-on experiences and workshops, students will have the opportunity to develop their drawing and prototyping skills. Projects will be designed from several points of view with a special focus on materials selection and manufacturing processes. Drawings and models must show an accurate level of detail.

COURSE OUTLINE/SCHEDULE			
Week	**Topic**	**Implementation (theory/practice)**	**Required Reading, Preliminary preparation**
1	Introduction to the course and the studio's topic. Project Brief: **Reimagining Everyday Objects** This studio encourages students to rethink familiar everyday objects through alternative materials and production logic. Students explore how a change in material or manufacturing process reshapes form, function, and meaning — developing an awareness of how production methods define design outcomes. Classwork: Individual work. Students will work on preparing list of everyday objects (between 5 to 10) and make a list of the main materials that have been used in them.	T-P	Analytical sketches, photos, part drawings.
2	**Concept Exploration I** Brainstorm ideas for reimagining the object. Encourage sketch exploration before material tests.	T-P	5–10 quick concept sketches, thumbnails, rough models.

3	**Concept Exploration II + Early Feedback** Develop selected concepts further through sketches and basic mock-ups.	T-P	2–3 concept directions with small study models.
4	**Material Research & Initial Experiments** Begin hands-on exploration of chosen materials related to concept.	T-P	Material test sheets + documentation
5	**Material Experimentation + Form Iteration** Test process methods: pressing, molding, layering, cutting, etc.	P	Updated concept sketches + test pieces.
6	**Concept Refinement & Process Integration** Combine form and material insights; finalize one concept.	T-P	Refined hand drawings, paper/card model.
7	**Design Detailing** Study proportion, scale, and usability through hand sketches and mock-ups. Midterm.	P	Detail sketches, exploded hand drawings.
8	**Prototype Planning**		

	Plan prototype materials, fabrication method, and sequence. Prepare jigs, molds, or templates if needed.	T-P	Detail sketches, exploded hand drawings. Process plan + working drawings.
9	**Prototype Fabrication Phase I & II** Build the prototype using workshop tools and chosen materials.	P	Detail sketches, exploded hand drawings. Process plan + working drawings.
10	**Prototype Fabrication Phase I & II** Build the prototype using workshop tools and chosen materials.	P	Assign mood board. Be prepared for doing sketches.
11	**Prototype Fabrication Phase I & II** Build the prototype using workshop tools and chosen materials.	P	Bring design proposal boards and sketches.
12	**Prototype Refinement** Improve finish, stability, and accuracy.	T-P	Be ready for finishing.
13	**Evaluation & Feedback** Group critique of prototypes; identify improvements or design insights.	T-P	Be ready for finishing.
14	**Presentation Development** Create final boards (hand-rendered) showing design journey.	P	Be ready for finishing.
15	**Final Presentation & Critique** Focus mainly on presentation techniques.	P	

16	**FINAL EXAM**		

Required Course Material(s) / Reading(s)/ Text Book(s)	• Calabretta, G., Gemser, G., & Karpen, I. (Eds.). (2016). *Strategic design: Eight essential practices every strategic designer must master*. Call number: TS171.4 .C35 2016 • Cato, K. (2016). *Thinking trademarks, symbols and logotypes*. Call number: NC1003.C38 2016 • Lawson, S. (2013). *Furniture design: An introduction to development, materials and manufacturing.* Laurence King Publishing. . Call number: NK2260.L38 2013 • Lockard, M. S. (2016). *The nature of design.* ORO Editions. Call number: N2750 .L63 2016 • Milton, A. (2013). *Research methods for product design*. Laurence King Publishing. . Call number: TS171.4 .M78 2013 • Morgan, L. Z. (2011). *The design behind desire.* Farah. Call number: TT507 .M67 2011
Recommended Course Material(s)/ Reading(s) /Other	• Ashby, M. F., & Johnson, K. (2014). *Materials and design: The art and science of material selection in product design (3rd ed.).* Butterworth-Heinemann. ISBN: 978-0081002759 • Ching, F. D. K. (2015). *Design drawing (2nd ed.).* Wiley. ISBN: 978-1118803899 • Fiell, C., & Fiell, P. (2000). *Industrial design A–Z.* TASCHEN. ISBN: 978-3822864138 • Karana, E., Pedgley, O., & Rognoli, V. (Eds.). (2014). *Materials experience: Fundamentals of materials and design*. Butterworth-Heinemann. ISBN: 978-0080993591 • Lefteri, C. (2012). *Making it: Manufacturing techniques for product design (2nd ed.).* Laurence King Publishing. ISBN: 978-1856697491 • Pulos, A. (1988). The American design ethic: A history of industrial design. MIT Press. ISBN: 978-0262660604 • Pye, D. (1968). *The nature and art of workmanship*. Herbert Press. ISBN: 978-1912217031

ASSESSMENT		
Learning Activities	**NUMBER**	**WEIGHT in %**
Mid-Term	1	40
Quiz		
Assignment		
Project		
Field Study		
Presentation / Seminar		
Studio Practice		
Other		
Contribution of Final Examination/Final Project/ Dissertation to the Final Grade	1	60
TOTAL	2	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 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)	15	1	10	150
Preliminary Preparation and self- study	5	1	8	40
Mid-Term	1	1	10	10
Quiz				
Assignment				
Project				

Field Study				
Presentation / Seminar				
Studio Practice				
Final Examination/ Final Project/ Dissertation	1	1	30	30
Other				
TOTAL WORKLOAD				230
TOTAL WORKLOAD / 25				9,2
ECTS				9

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 life. 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	x
	SDG 9: Industry, Innovation and Infrastructure	x
	SDG 10: Reduced Inequalities	x
	SDG 11: Sustainable Cities and Communities	
	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	Instr. Mojtaba Karimnezhad.
UPDATED	September 2025.
APPROVED	