COURSE SYLLABUS						
Course Title	**Course Code**	**Semester**	**Course Hour/Week**		**Credit**	**ECTS**
Form, Function and Energy	INDD108	2	**Theory** 2	**Practice** 2	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)	Assoc. Prof. Dr. Soad Abokhamis Mousavi	E-mail: Office :
Course Objectives	Aim is to research on industrial relations between materials, products and manufacturing methods with each other under the concept of sustainability.	
Course Learning Outcomes	**Students To Do:**	**Teaching Methods** / **Evaluation Methods**
	Explain the relationship between form, function, and energy use in product design.	Group discussions, lectures. / Midterm project submission, final exam.
	Analyze how material selection, structure, and geometry influence product performance and energy efficiency.	Group discussions, lectures. / Midterm project submission, final exam.
	Apply ergonomic and functional principles to develop energy-conscious design solutions.	Group discussions, lectures. / Midterm project submission, final exam.
	Evaluate the environmental and energy impacts of products throughout their life cycle.	Group discussions, lectures. / Midterm project submission, final exam.
	Integrate sustainable materials and energy-efficient strategies into industrial design processes.	Group discussions, lectures. / Midterm project submission, final exam.

	Synthesize aesthetic form, functional performance, and energy considerations into innovative and responsible product proposals.	Sustainable design lectures, group discussions.	Midterm project submission, final exam.
Course Content	This course aims to reveal the relationship between form, function and energy. Through the course students learn that the function of a product compared to its form depends very much on the nature of the product and its market and also that forms are individual movements and/or energetic changes between movements. The course provides students with an understanding of a design product as a system and learn movement patterns of this system. By the end of the course students are able to freely express the energy behind these sets of movements or forms.		

COURSE OUTLINE/SCHEDULE

Week	Topic	Implementation (theory/practice)	Required Reading, Preliminary preparation
1	Introduction to the course.	T-P	See required reading.
2	Introduction: Form, Function & Energy in Industrial Design • Relationship between aesthetics, usability, and performance • Energy awareness in product design	T-P	See required reading.
3	Introduction: Form, Function. & Energy in Industrial Design • Course expectations and project briefing	T-P	See required reading.
4	Principles of Form and Functional Logic. • Form development strategies • Functional hierarchy in product systems • Case studies of iconic industrial products (Short Video)	T-P	See the required books.
5	Ergonomics & Human-Centered Function. • Anthropometrics and usability • Energy use from the user's perspective	T-P	See required reading.

	• Workshop: ergonomic analysis of everyday objects		
6	Materials and Structural Efficiency. • Material properties and energy implications • Lightweight structures & efficiency • Sustainable material selection	T-P	See required reading.
7	Midterm Review / Concept Development. • Presentation of initial product concepts • Energy-performance	T-P	See required reading.
8	Midterm Week / Concept Development. • Feedback & critique session	T-P	See required reading.
9	Feedback and Critique Session.	T-P	See required reading.
10	Energy in Product Life Cycle. • Embodied energy • Life Cycle Assessment (LCA) basics • Circular design strategies	T-P	See required reading.
11	Passive and Active Energy Systems in Products. • Renewable integration in product design • Smart energy-efficient products	T-P	See required reading.
12	Climate-Responsive and Contextual Product Design. • Designing for different environmental conditions	T-P	See required reading.

	• Adaptability and resilience • Case study analysis		
13	Feedback and Critique Session.	T-P	See required reading.
14	Integrating Form, Function and Energy. • Refinement of prototypes • Balancing aesthetics and efficiency • Digital modeling & performance considerations	T-P	See required reading.
15	Final Presentation and Evaluation. • Final product presentation • Energy and sustainability justification • Peer critique & discussion	T-P	See required reading
16	Feedback & critique session	T-P	See required reading
17	**FINAL EXAM**		

Required Course Material(s) / Reading(s)/ Text Book(s)	• Mari, E. (2014). *Conditional design*. BIS Publishers. Call Number: HD58.8 .Y44 2017 • Yee, J. (2017). *Transformations*. BIS Publishers. Call Number: NA2765 .M37 2014
Recommended Course Material(s)/ Reading(s) /Other	• Zec, P. (2018). *The form of success: Design as a corporate strategy*. Red Dot Edition. ISBN: 978-3899392098

ASSESSMENT		
Learning Activities	**NUMBER**	**WEIGHT in %**

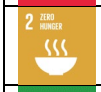
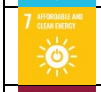
Mid-Term	1	40
Studio Practice		
Contribution of Final Examination/Final Project/ Dissertation to the Final Grade	1	60
TOTAL	2	100

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)	16	1	4	64
Preliminary Preparation and self- study	3	1	4	12
Mid-Term	1	1	4	4
Assignment				
Final Examination/ Final Project/ Dissertation	1	1	4	4
Other				
TOTAL WORKLOAD				84
TOTAL WORKLOAD / 25				3.36
ECTS				3

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	
	SDG 3: Good Health and Well-Being	x
	SDG 4: Quality Education	x
	SDG 5: Gender Equality	
	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	x
	SDG 11: Sustainable Cities and Communities	x
	SDG 12: Responsible Consumption and Production	x
	SDG 13: Climate Action	x
	SDG 14: Life Below Water	
	SDG 15: Life on Land	
	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. Emre Günal, Asst. Prof. Dr. Saloumeh Khayyat Kahouei, Assoc. Prof. Dr Soad Abokhamis Mousavi.
UPDATED	February 2023, February 2024, February 2026.
APPROVED	