

SYLLABUS

Basic data of the subject			
Academic unit:	Faculty of Engineering and Informatics		
Title of the subject:	Product and Process Design		
Level:	Master		
Course Status:	Core		
Year of studies:	2		
Number of hours per week:	3		
Value of Credits - ECTS:	6		
Time / location:			
Course lecturer:	Prof. As. Dr. Rrahim SEJDIU		
Contact details:			
Course Description			
	<i>The course aims to provide students with the necessary knowledge of product design and the design process. Students will be introduced to product development processes, design aspects and design innovation as well as prepare to work in real product development environments.</i>		
Objectives of the course:			
	<i>The course deals with the concepts of product design, innovative and creative product design concepts as well as process design. Product design approach is analyzed in multidisciplinary aspects from design inspiration, conception and implementation.</i>		
Expected learning outcomes:			
	<p><i>Upon successful completion of this subject, student will be able to:</i></p> <ul style="list-style-type: none"> <i>• understand the product development process,</i> <i>• identify product development opportunities,</i> <i>• generate and select innovative and creative product design concepts as well as product development decision made,</i> <i>• apply individual and team work as well as appropriate techniques to provide possible adequate product design solutions in real industry environments taking into account environmental impact issues.</i> 		
Contribution to the student load (which must correspond with learning outcomes)			
Activity	Hour	Day/Week	In total
Lectures with lab tutorials	3	15	45
Internship			
Contacts with teacher / consultations	2	4	8
Field exercises			
Midterm, seminars and projects.	20		20
Homework	15		15
Self-learning time student (at the library or at home)	3	15	45

Final preparation for the exam			15
Time spent on evaluation (tests, quiz and final exam)	1		1
Projects and presentations.	1		1
Total			150
Teaching methodology:			
	<i>Lectures combined with laboratory work, case studies and group discussions. Students should have knowledge in one of the programs: AutoCAD, Solidworks, Catia etc.</i>		
Assessment methods:			
	<ul style="list-style-type: none"> ➤ Homework assignments 30% ➤ Course project 60% (opportunity of identifying and evaluating product development 15%, concept generation 15%, prototype 15%, project presentation 15%) ➤ Discussion of assignments during lectures and case study interaction 10% 		
Literature			
Basic Literature:	<ol style="list-style-type: none"> 1. "Product Design and Development" Karl Ulrich and Steven Eppinger (Sixth Edition); 2. "Value Proposition Design: How to Create Products and Services Customers Want" Alex Osterwalder, Yves Pigneur, Greg Bernarda, Alan Smith, Trish Papadacos; 3. "The Design Thinking Playbook: Mindful Digital Transformation of Teams, Products, Services, Businesses and Ecosystems" Michael Lewrick, Patrick Link, and Larry Leifer 		
Additional Literature:	<ol style="list-style-type: none"> 4. "AutoCAD 2020 3D Modeling" Munir Hamad 5. "Vizatimi me kompjuter (AutoCAD 2015)" Avdiu S. 6. Harvard Business Review (HBR) Case Study Articles 		
The ratio of theory and practice	30% theory and 70% practice (lab works, class work and assignments, industry).		

Designed learning plan	
Week:	Lectures and exercises to be held
Week one:	<i>Product development process</i>
Week two:	<i>Identify opportunities and design thinking</i>
Week three:	<i>Product planning methods</i>
Week four:	<i>Product opportunity identification</i>
Week five:	<i>Value engineering and value analysis</i>
Week six:	<i>Product opportunity understanding</i>
Week seven:	<i>Concept generation</i>
Week eight:	<i>Concept selection and decision making</i>
Week nine:	<i>Innovation and creativity</i>
Week ten:	<i>Product platforms and product architectures</i>
Week eleven:	<i>Business models</i>
Week twelve:	<i>Business model generation and design</i>

Week thirteen:	<i>Environmental issues: sustainability and circular design</i>
Week fourteen:	<i>Fast prototyping techniques</i>
Week fifteen:	<i>Summary of course material</i>

Academic policies and rules of conduct

<i>Regular attendance of lectures and exercises is necessary, as well as active participation with discussion and solution of tasks. Not impeding the progress required for learning using mobile phones turned off or in silent mode.</i>
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