

	UNIVERSITY OF EAST SARAJEVO Faculty of Mechanical Engineering					
	Study program: Mechanical Engineering					
	1 ST LEVEL OF STUDIES		4 ST YEAR			
Course title	INTEGRATED PRODUCT DEVELOPMENT					
Department	Department of Mechanical constructions and Engineering Design					
Code	Course status		Semester	ECTS		
MAΦ-1-1-MC-06-2-098-8-5-2-1-1	Elective		VIII	5		
Professor	PhD Biljana Marković, full professor					
Teaching assistant	M. Sc. Aleksija Đurić - teaching assistant					
Number of hours (per week)			Individual student workload (in hours in semester)		Coefficient of student workload S₀	
L	E	LE	L	E	LE	S₀
2	1	1	2*15*S ₀	1*15*S ₀	1*15*S ₀	1.4
Total total teaching hours in semester 2*15 + 1*15 + 1*15 = 60 hours			Total student's workload (in hours in semester) 2*15*S ₀ + 1*15*S ₀ + 1*15*S ₀ = 84 hours			
Total course workload: 60 + 84 = 144 hours in semester						
Student learning objectives	<ol style="list-style-type: none"> 1. Introduction to basic rules and concepts in product development; 2. Understanding the difference between the conventional and integrated approach in product development; 3. Introduction to methods, techniques and tools in product development; 4. Understanding the algorithm - from idea to realization, all stages in product development; Innovation management; 					
Conditionality	Basic of constructions					
Teaching methods	Lectures, exercises, graphic exercises, computer exercises, laboratory exercises and team work					
Content of the course by weeks	<ol style="list-style-type: none"> 1. The role and importance of product development; Knowledge as a resource in the development of the country; The most important aspects of IPD; IPD elements; 2. The integrated and conventional approach in product development; Effects of IPD; 3. Product development and construction; Review of product development methods; 4. Technical systems and their characteristics; The concept of the system; Target system, actual and working system; Life flow of products on the market; 5. The role of team and teamwork in product development; The importance of project management as part product development process; 6. Defining input data for a practical example: A specific development task innovative product; 7. Product development algorithm; Clarification of the problem; List of requests, division, structuring; Methods for clarifying tasks; Check list, Questionnaires, Kano model; Abstraction; 8. Trend Annals, Forecast, Scenario Technique; Examples; Brainstorming, Brainwriting, Contents Characteristics, application; 9. "Conjoint" analysis; Benchmarking, application, process flow; Target costing, QFD method; weeks Discussion of methods and conclusion; 10. Search for solutions, methods of application; Choice of solution: evaluation of properties and objects; Assessment, testing (types); 11. Calculation- preliminary, final; Simulation, FEM; Virtual reality; 12. Evaluation of the solution; Basics of assessment methods; Requirements for assessment methods; Simple and differential methods of solution evaluation; 13. Simple methods of solution evaluation: checklist, singular comparison, comparison advantages and disadvantages, chances and risks, ranking procedures, comparison by pairs, j simple scoring; 14. Differential assessment; Weighing, Value on analysis; Useful profile value; Improving and simplifying assessment; 15. Determining the solution; Decision making, types of decisions; Weaknesses in decision making; Product development process documentation; 					
Required literature						
Authors	Name of the publication, publisher			Year	Pages	
B. Marković	Script – IPD			2020.	-	
Additional literature						
Authors	Name of the publication, publisher			Year	Pages	
					-	
Obligations,	Type of student evaluation			Points	Percentage	

forms of knowledge check and assessment			
	attendance at lectures / exercises	5+5	10%
	Team works project	60	60%
	final exam (oral / written)	30	30%
	Total	100	100 %
Web page	http://www.maf.ues.rs.ba/PDF_za_sajt/MKRP2017/Integralni%20razvoj%20proizvoda.pdf (in Serbian language)		
Date of certification			