No. 18

Add. 3	**Course syllabus for first cycle studies**					
1.	Course title	**Plastic deformation of metals**				
2.	Code	MDE6M4				
3.	Study group(s)	Metallurgical Digital Engineering				
4.	The organizer of the study program (unit, institute, department)	"Ss. Cyril and Methodius" University in Skopje,				
	Level (first, second, third degree)	First				
6.	Academic year / semester	academic	III	Semest	VI	
7	ECTS credits	6				
8.	Professor	Prof. PhD Jasmina Chaloska				
9.	Prerequisites for enrolling the course	None				
10.	Course objectives (competences): Knowledge in the field of plastic deformation of metals, theory of the deformation process and conditions for plastic deformation, stresses, deformations and stress-deformation states of plastic deformation technologies, materials and deformability, theory of dislocations, sheet metal processing technologies, volume processing technologies, superplasticity and microforming, application and modern trends in the development of plastic deformation metal processing technologies Learning outcomes: knowledge of the mechanisms of plastic deformation of metals, influence of material characteristics on plastic deformation workability, plastic deformation processing technologies					
11.	Course content: 1. Introduction - definition and terms in modern processes of plastic deformation of metals, 2. Theory of the deformation process - Stresses and strains, law of constancy of volume, stress-strain diagram, conditions of plastic flow of the material, deformability, friction, deformation force and deformation work 3. Materials and their characteristics - influence of formability by plastic deformation, deformability testing, Ericsson number, n and r-factor, theory of dislocations 4. Technologies of sheet metal processing - cutting, punching and blanking, fine blanking, deep drawing, bending 5. Volumetric shaping of metals - forging, rolling, extrusion, pulling 6. Modern tools and machines for processing metals by plastic deformation					
12.	Study methods: Lectures with presentations, interactive lectures, auditory and/or laboratory practice, teamwork, classroom exercises, preparation and presentation of a project assignment, electronic environment					
13.	Total hours	6 ECTS x 30 = 180 hours				
14.	Hours allocation per activity:	30+30+30+30+60=180 hours				
15.	Lectures/Lab	15.	Lectures (15 weeks x 2)	30 hours		
		15.	Lab (student work)	30 hours		
16.	Project Work/Assignments	16.1	Project assignments	30 hours		
		16.2	Individual assignments	30 hours		
		16.3	Self-study	60 hours		
17.	Points/Marks:					
	17.1.	Exams	70 points			
	17.2.	Projects	20 points			
	17.3.	Attendance	10 points			
18.	Grading scale	Under	5 (five) (F)			
		51 -	6 (six) (D)			
		65 -	7 (seven) (C)			
		75 -	8 (eight) (B-)			

		85 -	9 (nine) (A-/B+)			
		95 -	10 (ten)(A/A+)			
19.	Prerequisites for taking the final exam		Regular attendance to the lectures and exercises, as well as successful and timely completion of all			
20.	Language		Macedonian/English			
21.	Course evaluation		Internal evaluation and surveys			
22.	Textbooks					
	22.12	Instruction materials				
		No.	Author	Title	Publisher	Year
		1.	J. Chaloska	Plastic deformation of metals	Internal book, UKIM, [illegible]	
		2.	J.Chaloska	Machines and Tools for Forming processing	UKIM, FME Skopje	2021
		3.	V. Strezov	Plastic deformation processing	UKIM, FME Skopje	1990
	22.2	Supplemental Instruction Materials				
		No.	Author	Title	Publisher	Year
		1.	S.Rangjelovic, V. Marinkovic	Plastic deformation processing	University of Nis, Faculty of Mechanical Engineering	2017