No. 38

Course syllabus for First cycle studies					
1.	**Course title**	Machine elements			
2.	**Code**	MDE3M5			
3.	**Study Program**	Metallurgical Digital Engineering			
4.	**Study program organizer (unit, institute, department, division)**				
5.	**Degree (first, second, third cycle)**	First Cycle			
6.	**Academic year / semester**	II/3	7.	**Number of ECTS**	7
8.	**Instructors**	Prof. Nikola Avramov, PhD			
9.	**Prerequisites for course enrollment**	/			
10.	**Objectives of the course syllabus (competences):** Understanding the basics of machine design and the characteristics of general machine elements, including the design process using engineering mechanics, materials used, prevention of failure under static and dynamic loading, etc. **Acquired skills (competences): /**				
11.	**Content of the course:** Introduction; Materials; Analysis of loads, strains and stresses; Stiffness and deformation; Damage caused by static and dynamic load; Separable connections - threaded transmissions, threaded connections, dowels, wedges, pins; Inseparable connections - riveted, welded and glued; Elastic connections - springs; Couplings for axles and shafts; Axles and shafts; Bearings - sliding and rolling and their lubrication; Basic knowledge (kinematics) of mechanical power transmissions - friction and gears.				
12.	**Study methods:** Interactive lectures, course and/or laboratory exercises, company visits, guest lecturers from practice, independent and/or team work on project tasks, independent learning.				
13.	**Total available time**	210 (30 + 30 + 15 + 10 + 10 + 115)			
14.	**Allocation of available time**	2+2			
15.	**Teaching activities**	15.1.	Lectures-theoretical teaching	30	
		15.2.	Exercises (laboratory, practice classes), seminars, teamwork	45	
16.	**Other types of activities**	16.1.	Projects, seminar papers	10	
		16.2.	Individual tasks	10	
		16.3.	Homework and self-learning	115	
17.	**Grading system**				
	17.1.	Exams		80	
	17.2.	Seminar work/project (presentation: written and oral)		20	
	17.3.	Final Exam		100	
18.	**Grading criteria (points/grade)**	Up to 61 points		5 (five) (F)	
		From 61 to 69 points		6 (six) (E)	
		From 70 to 79 points		7 (seven) (D)	
		from 80 to 89 points		8 (eight) (S)	

		From 90 to 95 points	9 (nine) (B)
		from 95 to 100 points	10 (ten) (A)
19.	**Prerequisites for taking the final exam**	Regular attendance to the lectures and exercises, as well as successful and timely completion of all laboratory exercises.	
20.	**Language in which lectures are conducted**	Macedonian	
21.	**Method for monitoring the quality of lectures**	Internal evaluation and surveys.	

22. **LITERATURE**

22.1. Compulsory literature

No.	Author	Title	Publisher	Year
1.	D. Stamboliev	Machine elements	"Ss. Cyril and Methodius University", Skopje, R. Macedonia	2003
2.	Budinas-Nisbet	Shigley's Mechanical Engineering Design	Mc Graw-Hill	2008
3.	Marc Myers and Christian Chawla	Mechanical Behavior of Materials	Cambridge University Press	2009

22.2. Additional literature

No.	Author	Title	Publisher	Year
1.	N. Avramov	Machine elements problem solving	Faculty of Mechanical Engineering - Skopje	2024
2.				
3.				