



UNIVERSITETI / UNIVERSITY
"ISA BOLETINI"
MITROVICË

Course Curriculum Model (Syllabus)		
Faculty:	FACULTY OF MECHANICAL AND COMPUTER ENGINEERING	
Department:	Economics Engineering	
Level:	Bachelor	
Code of the course:	201 EE	
Course:	Design of Machine elements and construction	
Course Status:	Mandatory	Mandatory/Elective
Semester:	(III)	Winter/Summer
Number of hours per week:	3+3	
ECTS:	6	
Time / location:	Wednesday, 9 ⁰⁰ -10 ³⁰ , K5	
Year of studies:	2024/2025	
Lecturer:	Prof. Ass Dr Fatmir Azemi	
Assistant:		
Contact details:	Professor	Assistant
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	Telephone:	
Course description	This course will provide students with the basic knowledge and concepts of calculating tolerances, loads, stresses and the safety factors of various mechanical elements using different methods of solving practical problems in engineering. The course includes power screws, bolts, springs, belt and chain transmitters. Gear transmitters, shafts, bearing and couplings are included as well.	
Purpose (Goals)	Students are provided with information about machine elements, which are used in various machines in general. The course analyzes in particular the details, which are used in the constructions of manufacturing machine systems in industry.	
Learning outcomes	Upon successful completion of this course, students should be able to: <ul style="list-style-type: none">- know the concept of machine elements tolerances,- understand the calculations of stresses, loads and safety factors of various machine elements (threads, bolts, belts and chain transmitters, etc.).- know the working concept and calculation of gear transmitters, shafts, bearings and couplings.- choose the right methods for calculating machine elements,- apply appropriate theoretical methods in solving practical problems.	

	Weeks	Lecture
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P r o g r a m (c o n t e n t)	<i>First week:</i>	Introduction. History overview. Machine types. Definitions and structure of transmission.
	<i>Second week:</i>	Basic of power ant movement transmission. Nomenclature, structure and definition of transmission, speed, transmission ratio, transmission ratio field, transmission ratio step, transmission set.
	<i>Third week:</i>	Torque, power, efficiency, dynamics of transmission. Transmission classification. Inalterable and alterable transmission ratio
	<i>Fourth week:</i>	Mechanic, electric and hydraulic types of transmission and their basic characteristic. Comparison of different power or movement transmission systems.
	<i>Fifth week:</i>	Driving and operating machines. Electric drives. Internal combustion engines. Turbines, gas, steam, water and hydraulic.
	<i>Sixth week:</i>	6. Arrangements of gear drives. Creation of request table.
	<i>Seventh week:</i>	Distribution of transmission ratio. Selection of facewith. Selection of b/a and b/d ratio.
	<i>Eighth week:</i>	Selection of number of tooth by different criterion. Recommended number of tooth. Selection of helix angle. Selection of profile and modification.
	<i>Ninth week:</i>	Design of transmission. Design of gears, shafts, bearings, housing. Balance of rotating mass.
	<i>Tenth week:</i>	Load carrying capacity calculations for gear transmission. Selection of calculation method. Gear drive noise source. Prevention of noise source and noise propagation.
	<i>Eleventh week:</i>	Simple planet drives, definition and configuration. Partition of planet drive transmissions. Nomenclature, symbol notation. Planet drive cinematic. Kutzbach method, Wilis method and superposition method.
	<i>Twelfth week:</i>	Power and movement calculation of simple planet drives. Efficiency calculation. Virtual power. Partition of rolling power in total power.
	<i>Thirteenth week:</i>	General design requirements for planet gear drives. Uniform distribution load proposition. Coaxial and assembly requirements.
	<i>Fourteenth week:</i>	Reduced clearance or without clearance gear drives. Harmonic drive transmission. Cycle transmission.
	<i>Fifteenth week :</i>	Power and movement transmission testing. Closed power flow circuit. Open power flow circuit.

Literature	
L i t e r a t u r e	Base literature
	Dr. sc. Nijazi Ibrahim, Detalet e Makinave I dhe II, Prishtinë, 2004,
	Dr. sc. Hakif Zeqiri, Praktikum, ushtrimeve numerike, FIMK, Mitrovicë, 2020
	Dr. sc. Azem Kyçyku, Udhëzime për detyra grafike, FIM, Prishtinë 2007
	Recommended Literature:
	"Design of Machinery" by Robert Norton (6th edition, 2019)
	"Machine Elements in Mechanical Design" by Robert L. Mott, Edward M. (2020)
	"Machine Design: An Integrated Approach" by Robert L. Norton. (6th edition, 2019)
	"Mechanical Design Engineering Handbook" by Peter R.N. Childs (3rd edition, 2018)
	"Mechanical Design: Theory and Methodology" by K. Srinivasan (2018)
	"Mechanical Design of Machine Elements and Machines: A Failure Prevention Perspective" by Jack Collins (2nd edition, 2018) Rolloff/Matek Maschinenelemente; Mechanical desktop.

T e a c h i n g m e t h o d o l o g y	Lectures, exercises, individual work, experimental work, seminar papers, colloquia, essays, field work, group work, etc. Completed according to the specifics of your subjects!			
	Contribution to student workload (which should correspond to student learning outcomes - 1 ECTS credit = 25 hours)			
	Activity	Hours	Days/weeks	Total
	Lectures	3	15	45
	Exercise sessions (with TA)	3	15	45
	Practical work	3	3	9
	Office hours	1	10	10
	Fieldwork	1	2	2
	Midterms, seminars	2	2	4
	Homework	3	2	6
	Self-study	4	3	12
	Final exam preparation	3	3	9
	Time spent in exams	2	2	4
	Projects, presentations, etc.	2	2	4
Total				150

E v a l u a t i o n	Assessment methodology: (according to the Statute and Regulation for studies of UMIB)		
	Tests / Colloquia (First Test) (Second test)	15%	15%
	Practical test during exercises (Essay)		
	Workshop seminar		
	Interpretation and presentation of artistic creativity and other works.		
	Assignments and courses during the semester	15%	
	Professional practice		
	Other,(Specify) Participation	10%	
	Final exam	45%	
	Total	100%	
	Final grade	Points (%)	Mark
		91 – 100	10
		81 - 90	9
		71 - 80	8
		61 - 70	7
		51 - 60	6

Criteria for regular attendance and rules of etiquette during the organization of the lesson are set.

Computer work:

Graphic works, I have to draw and write with a computer. In the works it is obligatory to respect the criteria for both the visual and the content aspect of the required works.

Ethics in teaching:

Graphic works should be personal works of each student. There will be no tolerance for copying, "borrowing" from the Internet or any other material. The same or similar works will have negative evaluations in the final evaluation of the student.

Time:

In agreement with the students, the deadlines for submitting works will be determined. There will be no tolerance for delays in the submission of works. Failure to arrive at the time when the assignment is explained does not justify the student for not submitting the paper. The deadline will be given earlier. If you are going to travel abroad, then you need to submit the paperwork in advance. The student has the right to request a consultation with the professor whenever he / she deems it reasonable and necessary for the performance of his / her work.

Rules of conduct and academic policies:

- active participation of students in lectures o participation in discussion, comments and free expression of opinion, opinion and academic position (with arguments)
- Mandatory independent work and use of additional sources of information (various scientific websites, scientific journals, conference proceedings, etc.)
- Respecting lecture schedules without compromising academic freedom (silent cell phones) of respecting the word, thoughts and ideas of colleagues,
- It is not allowed to arrive late and leave without a valid reason from the lecture, test or exam o preparation and holding of relevant lectures, (obligation of the teacher).
- if the student is absent more than four times without reason in lectures and exercises, does not receive the signature for attendance. o the student cannot take the exam without an official document,
- if the student is dissatisfied with the grade obtained, has the right to complain in writing to the dean, within two working days after the announcement of the results, UMIB Statute o if the student does not follow the rules, in the exam uses tools that are not allowed, it is evaluated with a negative grade.

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Mitrovica; 29/04/2023

Prof. Ass. Dr. Fatmr Azemi