UNIVERSITETI /UNIVERSITY
"ISA BOLETINI"
MITROVICË

Course Curriculum Model (Syllabus)		
Faculty:	**FACULTY OF MECHANICAL AND COMPUTER ENGINEERING**	
Department:	**Mechanical Engineering**	
Level:	Bachelor	
Code of the course:	202ME	
Course:	**Mechanics of materials**	
Course Status:	-	Mandatory
Semester:	(II)	**Winter**/Sumer
Number of hours per week:	2+2	
ECTS:	5	
Time / location:	Monday, 9^{00}-10^{30}, S308	
Year of studies:	2024/2025	
Lecturer:	Prof Dr. Ahmet Latifi	
Assistant:	MSc Granit Hajra	
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Course description	This course provides a comprehensive study of structural mechanics and analysis, focusing on the geometrical characteristics of plane sections, axial loading, bending, and deformation of structures. The syllabus encompasses the analysis of reinforcements, deformations, and various methods for determining forces, reactions, and displacements in structural elements. The course also introduces students to graphical and analytical methods for structural analysis.
Purpose	The purpose of the "Structural Mechanics and Analysis" course is to provide participants with a comprehensive understanding of the principles governing the behavior of structures and the analytical methods used to assess their performance.

Learning outcomes	● Upon successful completion of this subject, students will be able to: Understanding of Structural Principles: ● Application of Analytical Methods: ● Problem-Solving Skills: ● Graphical Visualization and Communication: ● Practical Application in Design:

	Weeks	Lecture
Program	***First week:***	Introduction into Mechanics od deformable solids.
	Second week:	Definition of stress and strain. Hooke´s law for axial loads.
	***Third week*:**	Constants of elasticity: Young's modulus, shear modulus, Poisson's ratio.
	Fourth week:	Axial load: calculation of stress and strain, design of bars for axial load. Statically indeterminate structures.
	Fifth week:	Thermal effects on axial deformation and geometric "misfits".
	***Sixth week*:**	Shear stress and shear strain.
	Seventh week:	Geometric properties of plane areas: first moments of area; centroid, moments of inertia of an area, product of inertia of an area, parallel- axis theorems, moments of inertia of an area about inclined axes, principal moments of inertia.
	Eighth week:	Torsion of circular bars: computation of shear stress; Hooke's law for shear; design of circular bars.
	***Ninth week**:*	Bending: flexural stress in linearly elastic beams; design of beams for strength; differential equations of the deflection curve;computation of slope and deflection; unsymmetric bending.
	***Tenth week**:*	Plane stress: stress transformation for plane stress, principal stresses and maximum shear stress, Mohr's circle for plane stress.
	***Eleventh week**:*	Plane strain: transformations of strains in a plane; principal strains; Mohr's circle for strain; measurement of strain; strain rosettes.
	Twelfth week:	Hooke's law for plane stress. Generalized Hooke's law for isotropicmaterials.
	***Thirteenth week*:**	Combined loading. Failure theories: maximum-shear-stress theory; maximum-distortion-energy theory (HMH); equivalent stress.
	Fourteenth week:	Thin-wall pressure vessels: axial (longitudinal) stress; hoop stress
	Fifteenth week :	Buckling of columns: the ideal pin-ended column; Euler buckling load; the effect of end conditions on column buckling.

Literature	
Literature	**Principal literature** : ● Xh PERJUCI, Rezistenca e Materialeve 2022. **Recommended Literature:** ● F. Jagxhiu, Rezistenca e Materialeve, Prishtinë, ● Xh PERJUCI, Manuali i Rezistenca se Materialeve 2020.

	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	2	15	30
	Exercise sessions (with TA)	2	15	30
	Practical work	3	3	9
	Office hours	2	2	4
	Fieldwork	-	-	-
	Midterms, seminars	4	2	8
	Homework	2	5	10
	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				**125**

Evaluation	**Teaching methodology:** (according to the Statute and Regulation for studies of UMIB)		
	Tests / Colloquia (First Test) (Second test)	10% 10% 10%	
	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, Continuity		
	Final exam	55%	
	Total	: 100%	
	Final grade	Percent (%)	Grade
		91 – 100	10
		81 - 90	9
		71 - 80	8
		61 - 70	7
		51 - 60	6

Academic policies	**Criteria for regular attend. 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, UIBM 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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Mitrovicë; 15/04/2023 Prof Dr. Ahmet Latifi