NAME OF THE COURSE	Technical mechanics and strength of materials							
Code	PMT155	Year of study	2					
Course teacher	Tomislav Matić	Credits (ECTS)	6					
Associate teachers	Dražen Kustura	Type of instruction (number of hours)	L	S	E	F		
			45		15			
Status of the course	Compulsory	Percentage of application of e-learning						

COURSE DESCRIPTION

Course objectives	Adopting the knowledge necessary for design of simple members of structures, subjected to static loads.
Course enrolment requirements and entry competences required for the course	None.
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	1. Explain the basic terms and concepts of mechanics (force, moment of a force, couple, moment of couple, force system, support, support reaction, external forces, internal forces) 2. Apply the equilibrium conditions to constrained rigid bodies and multibody systems. 3. Calculate the components of internal forces of statically loaded structures (beams, frames and trusses). 4. Explain the relationship between the stress and strain. 5. Calculate the geometric properties of the areas. 6. Calculate the stress and displacement of rods subjected to axial load, torsion and bending. 7. Apply failure criteria for design of bars. 8. Analyse bars subjected to combined loading applying the failure theories. 9. Describe the buckling of columns.
Course content broken down in detail by weekly class schedule (syllabus)	Week 1: The basic terms and concepts of mechanics. Newton`s laws. Force system resultant (concurrent, parallel and general force system). Moment of force. Week 2: The equilibrium conditions. Bodies constrains and force reactions. Week 3: The equilibrium conditions with friction. Sliding friction. Belt friction. Rolling resistance. Week 4: Structures. Trusses, beams. Week 5: Frames. Examples of trusses, beams and frames. Week 6: Centroids of lines, areas and bodies. Week 7: Colloquium. Week 8: Stress and strains. Hooke`s law. Week 8: The geometric properties of the areas (static moment of area, moment of inertia). Week 9: Dimensioning of axially loaded members. Week 10: Dimensioning of members subjected to bending. Week 11: Dimensioning of members loaded on torsion. Week 12: Dimensioning of bars subjected to combined loading. Week 13: The failure theories. Application of failure theories for combined loadings. Week 14: The buckling of columns (elastic and inelastic buckling). Week 15: Colloquium.
Format of instruction	☒ lectures ☐ seminars and workshops ☒ exercises ☐ *on line* in entirety ☐ partial e-learning ☐ field work ☐ independent assignments ☐ multimedia ☐ laboratory ☐ work with mentor ☐ (other)
Student responsibilities	Class attendance, independent study and literature reading, accessing colloquia and/or written and oral examination.

Screening student work *(name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*						
	Class attendance	2,25	Research		Practical training	
	Experimental work		Report		Attending the exercises	0,75
	Essay		Seminar essay		Independent learning	3
	Tests		Oral exam		(Other)	
	Written exam		Project		(Other)	

Grading and evaluating student work in class and at	Two colloquiums or written and oral exams in the examination period. Students which achieve more than 50% result of each colloquium or at written/oral exam will have successfully completed the course. Depending of the achieved result

the final exam	percentage at colloquium or at written/oral exam final grades are as follows: 50 - 62% - sufficient (2) 63-75% - good (3) 76-87% - very good (4) 88-100% - excellent (5)		
Required literature (available in the library and via other media)	**Title**	**Number of copies in the library**	**Availability via other media**
	1. Matić T., Osnove statike, recenzirano predavanje, web fakulteta 2008.		
	2. Matić. T. Osnove čvrstoće, interna skripta (predavanja)		
Optional literature (at the time of submission of study programme proposal)	1. Muftić O, Statika, Školska knjiga, Zagreb, 1989. 2. Alfirević I, Nauka o čvrstoći, Tehnička knjiga, Zagreb, 1997.		
Quality assurance methods that ensure the acquisition of exit competences	Conducting an anonymous student surveys, talk with students, analyses the success of students on tests and exams, self-assessment.		
Other (as the proposer wishes to add)			