NAME OF THE COURSE	THERMODYNAMICS 2							
Code	FESC09	Year of study	1					
FESC06	Nižetić Sandro, Ph.D. Associate Professor	Credits (ECTS)	7					
Nižetić Sandro Ivan Tolj Dario Bezmalinović Grubišić-Čabo Filip	Ivan Tolj, Ph.D. Teaching assistant Dario Bezmalinović, Ph.D. Teaching assistant	Type of instruction (number of hours)	L	S	AE	LE	DE
			45	0	30	0	0
	Obligatory	Percentage of application of e-learning					
Obavezni							

Course objectives	Training students for: - Specify (list) and describe general heat transfer mechanisms, - Implement general heat transfer laws (mechanisms) for properties and systems, - Analyse and compute: combustion process, heat exchangers, and properties state change for moist air.		
Course enrolment requirements and entry competences required for the course	Thermodynamics 1, Mathematics 1 and Mathematics 2.		
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	Students will be able to: 1. Classify and implement basic heat transfer mechanisms, 2. Classify and compute basic parameters for heat exchangers, 3. Demonstrate and compute processes in the charts for moist air, 4. Analyse and elaborate general combustion processes, 5. Analyse and elaborate general flow processes and laws.		
Course content broken down in detail by weekly class schedule (syllabus)	Course content	L or S hours	AE hours
	Introduction to the heat transfer. Heat conduction (stationary case).	3 hours	2 hours
	Nonstationary heat conduction. Introduction to the heat convection.	3 hours	2 hours
	Convective heat transfer.	3 hours	2 hours
	Introduction to the thermal radiation, general thermal radiation laws.	3 hours	2 hours
	Heat transfer by thermal radiation – analysis of specific cases.	3 hours	2 hours
	Heat transfer (fluid to fluid), introduction to heat exchangers.	3 hours	2 hours
	Heat exchangers.	3 hours	2 hours
	Introduction to the moist air, properties of the moist air, Moliere h-x properties chart.	3 hours	2 hours

	Properties change curves for moist air.	3 hours	2 hours
	Drying process, drying processes, water evaporation.	3 hours	2 hours
	Introduction to the combustion, stoichiometric ratio.	3 hours	2 hours
	Combustion products analysis, gross and net calorific value, theoretical and real combustion temperature, and Moliere hx properties chart for combustion analysis.	3 hours	2 hours
	Introduction to the flow processes, elementary flow equations.	3 hours	2 hours
	Laval nozzle and flow processes, turbine work.	3 hours	2 hours
	Introduction to the binary mixtures, evaporation and liquefaction processes (distillation).	3 hours	2 hours

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	The presence on lectures in the amount of at least 70 % of the times scheduled. Performed all required auditorium exercises.	

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	Research	3	Practical training	
	Experimental work		Report		(Other)	
	Essay		Seminar essay		(Other)	
	Tests		Oral exam		(Other)	
	Written exam		Project		(Other)	

Grading and evaluating student work in class and at the final exam			
Required literature (available in the library and via other media)	**Title**	**Number of copies in the library**	**Availability via other media**
	S. Nižetić, Termodnimika 2, online predavanja (FESB), 2010.		
	F. Bošnjaković: Nauka o toplini (I i II dio), Tehnička	2	

	knjiga, Zagreb, 1970 i 1976		
	O. Fabris: Osnove inženjerske termodinamike, Pomorski fakultet Dubrovnik, Dubrovnik, 1994.	3	
Optional literature (at the time of submission of study programme proposal)	-E. Kulić, A. Lekić, P. Kesić, O. Fabris: Zbirka riješenih zadataka iz termodinamike, Mašinski fakultet, Sarajevo, 1968 -A. Galović, M. Tadić, B. Halasz, "Nauka o toplini II", Zbirka zadataka FSB, 1996.		
Quality assurance methods that ensure the acquisition of exit competences	- Evaluation of results in accordance with the above learning outcomes - Feedback from students via surveys - Self-evaluation of teachers - Institutional and non-institutional evaluations		
Other (as the proposer wishes to add)			