

Study program: Mechanical engineering			
Type and level of studies: Master studies			
Course unit: Heat and mass transfer			
Teacher in charge: dr Miljan Marašević			
Language of instruction: English			
ECTS: 6			
Prerequisites: None			
Semester: Winter			
Course unit objective: Students will master the knowledge in the field of heat and mass transfer - a scientific discipline that is the basis for the design of devices and plants in thermal power engineering, thermal engineering and process engineering. Within the course, stationary and non-stationary heat conduction, forced and natural heat transfer (convection), heat exchange by radiation, heat transfer during condensation and boiling, and methods of mass transfer are studied.			
Learning outcomes of the Course unit The student will be able to: recognize the basics of heat and diffusion processes, recognize the basic equations that define the processes of heat transfer and mass, recognize and determine the heat transfer equations in characteristic cases, recognize the characteristic heat appliances used for heat exchange processes, dimension heat appliances on basis of heat balances and dimensions of geometric characteristics of heat appliances.			
Course unit contents <i>Theoretical classes</i> The course deals with: stationary and non-stationary temperature field, differential equation of heat propagation, boundary and initial conditions, stationary heat propagation in characteristic cases, heat propagation through a thin rod, flat plate, longitudinal and transverse ribs, non-stationary heat propagation by conduction, heat exchange heat transfer coefficient, similarity theory, heat transfer when the state of matter changes, radiation of gases and vapors, basic theory of diffusion mass transfer, molecular diffusion, convective diffusion. <i>Practical teaching</i> Laboratory exercises for determining: heat flux, size of moist air, heat power of heat exchangers.			
Literature 1. D. Milinčić, Heat Propagation, Faculty of Mechanical Engineering, Belgrade, Belgrade 1979. 2. D. Voronjec, Fundamentals of Process Chemistry, Faculty of Mechanical Engineering, Belgrade, 1981. 3. V. Jaćimović, S. Genić, Heat Operations and Apparatus, Faculty of Mechanical Engineering, Belgrade, 1992.			
Number of active teaching hours			Other classes
Lectures: 2	Practice: 2	Other forms of classes: 1	
Teaching methods Theoretical classes, auditory exercises with computational examples and laboratory exercises.			
Examination methods (maximum 100 points)			
Exam prerequisites	No. of points:	Final exam	No. of points:
Student's activity during lectures	5	oral examination	
practical classes/tests		written examination	25
Seminars/homework	40	
Project	30		
Other			
Grading system			
Grade	No. of points	Description	
10	91-100	Excellent	
9	81-90	Exceptionally good	
8	71-80	Very good	
7	61-70	Good	
6	51-60	Passing	
5	Less than 50	Failing	