

Study program / course: Mechanical Engineering			
Type and level of study: Master academic studies			
Course: Devices and Plants for Heating and Air Conditioning			
Lecturers: Bojic Lj. Milorad			
Status of course: Elective for module M₄, III semester			
Number of ECTS: 6			
Precondition: none			
The objective of course: Education objective is to introduce student with characteristics, design, and analyses of installations for heating, and air conditioning.			
The outcome of course Based on obtained knowledge, students will be qualified to design and analyze operation of installations for heating and air conditioning.			
Syllabus HEATING: Panel heating. Ceiling heating. Floor heating. Steam heating of low pressure. Vacuum heating. Heating by using heat pumps. Air heating. AIR CONDITIONING: Air conditioning systems and their devices: (central, zone, one channel with high pressure, two channel air-water and water) Software: EnergyPlus and Genopt. During their exercises in computer room, students simulate and analyze either installation of central heating of some family house, or air conditioning of one industrial building by using software EnergyPlus and Genopt. On one field and one laboratory exercise, students are introduced to devices for heating, and air conditioning and measure thermal characteristics of these devices.			
Recommended reading [1] Todorovic, B., Design of Plants for central heating (in Serbian), Mechanical engineering Faculty at Belgrade, XI edition, 2005. [2] Todorovic, B., Air Conditioning (in Serbian), SMEITS, II edition, 2005. [3] Chadderton, D., Building Services Engineering, E & FN SPON, London, 2000.			
The number of hours of active teaching:			Other classes: 1
Theory: 3	Practical classes: 1.4	Other forms of teaching: 0.6 Research study: 0	
Methods of teaching lectures, laboratory exercises, project (1), colloquiums – theory (2), exam (oral)			
Evaluation of knowledge			
Pre-final exam obligations	points	Final exam	<i>points</i>
Activities during lectures:	5	oral exam	30
Activities during practical classes:	5		
Colloquiums(s) :	30		
Project(s)	30	