

Study program / course: Mechanical engineering				
Type and level of study: Master study				
Course: Thermoenergetic units and plants				
Lecturers: Nebojsa S. Lukic				
Status of course: Elective for module M₄, III semester				
Number of ECTS: 6				
Precondition: No				
The objective of course				
The main objective of course is introduction with basic principles of combustion and gas flow (supersonic and subsonic flow). Applying combustion theory, students should obtain defined knowledge about boilers and boiler plants. Recent heat exchangers design, heat pipes theory and desalination process and plants are also the course issue.				
The outcome of course				
Student understands basic principles and laws of combustion and gas flow. Student is capable to calculate process limits, theoretical combustion temperature, needed air flow and exergy losses. Student is capable to understand methods of thermal desalination, to apply thermodynamic and hydraulic calculation of heat exchangers. Also, student is open to obtain the boiler process efficiency and heat losses, theoretically or experimentally. On real plant, student can recognize main parts of boiler or heat pipes.				
Syllabus				
Theoretical study				
Recent heat exchanger design (extended course), combustion, gas flow theory, boiler and boiler plants, heat pipes, desalination process and plants.				
Practical classes				
Theoretical practice: Carrying out of combustion, gas flow and heat exchanger practical problems. Thermodynamic and hydraulic calculation of defined heat exchanger model. Laboratory practice: Work with real setups of heat pipe and heat exchanger. Visit to boiler plants.				
Recommended reading				
Bojic M., Hnatko E., Thermotechnics, MFKG, 1987.				
Bogner D., Thermotechnician I, MFBG, 2004.				
Lukic N., Desalination (script), MFKG, 2007.				
Lukic N., Heat pipes (script), MFKG, 2000.				
The number of hours of active teaching: 3+2 per week (total 75)				Other classes:
Theory: 3	Practical classes: 1.4	Other forms of teaching: 0.6	Research study: 0	1
Methods of teaching				
Lectures using video presentations, multimedia, laboratory.				
Evaluation of knowledge				
Pre-final exam obligations	points	Final exam	points	
Activities during the classes:	5	Written exam	20	
Practical classes:	10	Verbal exam	20	
Colloquiums(s) :	45			
Seminar(s) :	-			

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Recommended reading				
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The number of hours of active teaching:				Other classes:
Theory:	Practical classes:	Other forms of teaching:	Research study:	
Methods of teaching				
Evaluation of knowledge				
Pre-final exam obligations	points	Final exam	points	
Activities during the classes:				
Practical classes:				
Colloquiums(s) :				
Seminar(s) :				