

Study program / course: Mechanical engineering				
Type and level of study: Master academic studies				
Course: Hydro and thermo-power plants				
Lecturers: Dobrica M Milovanovic, Nebojsa S Lukic, Savic R Slobodan				
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 of basic principles of working, main elements and working cycles of hydro and thermo-power plants. Students should obtain defined knowledge about the most efficiency methods of electrical energy production or combined production of electricity and heat. The environmental protection is important part of course.				
The outcome of course Student understands basic principles of working of hydro and thermo-power plants. Student is capable to recognize and calculate process in main parts of plants. Student is capable to understand and apply methods of the most efficiency energy production. Also, student is aware about importance of environmental protection during hydro and thermo-power plants functioning.				
Syllabus				
Theoretical study Rankine and Brayton cycles, basic elements of thermo-power plant, boilers, super-heaters, condensers, turbines, combined cycles, efficiency coefficients, environmental protection. Types of hydro-power plants, classification of disposition solutions, basic elements of hydro-power plants. Water turbines, types, principles of work, working characteristics. Design of hydro-power plant - selection of turbine parameters. Energetic and economic characteristics of hydro-power plants.				
Practical classes Theoretical practice: Calculation problems of Rankine and Brayton cycles, creating of project task. Laboratory practice: Visitations to hydro and thermo-power plants.				
Recommended reading Bojic M., Hnatko E., Thermotechnics, MFKG, 1987. Bogner D., Thermotechnician I, MFBG, 2004. Djordjevic B., Using water power, Basic of hydro-potential using, Belgrade, 1981. Ristic B., Hydro-power plants, EPS, 1997. Benisek, M., Hydraulic turbines, Belgrade, 1998.				
The number of hours of active teaching: 3+2 per week (total 75)				Other classes: 1
Theory: 3	Practical classes: 1.4	Other forms of teaching: 0.6	Research study: 0	
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) :	-			