



UNIVERSITY OF NIŠ

Course Unit Descriptor**Faculty**

Faculty of Mechanical Engineering

GENERAL INFORMATION

Study Program	Energy and Process Engineering		
Study Module (if applicable)	-		
Course Title	Thermal Power Plants		
Level of Study	<input type="checkbox"/> Bachelor	<input checked="" type="checkbox"/> Master's	<input type="checkbox"/> Doctoral
Type of Course	<input type="checkbox"/> Obligatory	<input checked="" type="checkbox"/> Elective	
Semester	<input type="checkbox"/> Autumn	<input checked="" type="checkbox"/> Spring	
Year of Study	I		
Number of ECTS Allocated	6		
Name of Lecturer/Lecturers	Dragoljub S. Živković, Mirjana S. Laković		
Teaching Mode	<input checked="" type="checkbox"/> Lectures	<input type="checkbox"/> Group tutorials	<input type="checkbox"/> Individual tutorials
	<input type="checkbox"/> Laboratory work	<input checked="" type="checkbox"/> Project work	<input checked="" type="checkbox"/> Seminar
	<input type="checkbox"/> Distance learning	<input type="checkbox"/> Blended learning	<input type="checkbox"/> Other

Purpose and Overview (max. 5 sentences)

Introduce students to operational principles, calculation methods of parts of the plant, design and exploitation problems of modern power plants. The course enables the mastering of calculation methods of the certain parts of the plants, design, analysis, construction and operation of modern power plants.

Syllabus (brief outline and summary of topics, max. 10 sentences)

1) General introduction - primary energy resources, consumption of electric power and thermal energy, consumption diagrams and consumer characteristics, historical development and types of thermal power plants; 2) Selection of schemes and parameters of thermal power plants – Technological scheme, thermal scheme, scheme of pipelines and armature scheme; 3) District heating power plants; 4) Design of modern power plants – main stages of design, site selection and general plan of power plants, preliminary design with investment program, general disposition and composition of thermal power plant, criteria for optimization, guidelines for equipment contracting; 5) The condensation plant – scheme and basic elements of condensing plant, thermal processes in condenser, devices for suction air and non-condensing gases; 6) System for supplying water to the power plants – flow and return flow cooling, water treatment process, cooling towers; 7) Transport and storage of fuels in power plants; 8) Transport and storage of slag and ash in power plants; 9) Purification and removal of flue gases into the atmosphere; 10) Nuclear power plants; 11) Exploitation problems of thermal power plants – maintenance, automatic control, regulation, process of starting-up, process of shutting-down, warranty and operation tests; 12) Production costs and optimization of thermal power plants – calculation of production costs, criteria for optimizing with application of comparative economic factors, economic indicators of profitability.

Language of Instruction

Serbian (complete course) English (complete course) Other _____ (complete course)

Serbian with English mentoring

Serbian with other mentoring _____

Assessment Methods and Criteria

Pre exam Duties	Points	Final Exam	Points
Activity During Lectures	5	Written Examination	10
Practical Teaching	5	Oral Examination	Max. 30 (depending on Teaching Colloquia)
Teaching Colloquia	50	Overall Sum	100

*Final examination mark is formed in accordance with the Institutional documents