



# UNIVERSITY OF NIŠ

**Course Unit Descriptor**

**Faculty**

Faculty of Mechanical Engineering

## GENERAL INFORMATION

Study Program	<b>Mechanical Engineering</b>
Study Module (if applicable)	-
Course Title	Thermal Energy Plants
Level of Study	<input checked="" type="checkbox"/> Bachelor <input 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	IV
Number of ECTS Allocated	5
Name of Lecturer/Lecturers	Dragoljub S. Živković
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 the most important types of modern thermal energy plants and principles of their operation. The course enables the mastering of calculation methods, analysis, construction and operation of various types of modern power energy plants.*

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

1) General introduction - energy resources, historical development, types and basics of thermal schemes of thermal energy plants; 2) Thermodynamics basics of steam block – Basic and main thermodynamic parameters, steam block from the standpoint of the first and the second law of thermodynamics, thermodynamic improvement of steam block; 3) Thermodynamics basics of gas block – Basic and main thermodynamic parameters, thermodynamic improvement of gas block; 4) Combined production of electricity and thermal energy (cogeneration); 5) Heating plants and industrial power plants; 6) Power plants and thermal power plants; 7) Supply of thermal power plants with fuel; 8) Supply of thermal power plants with water; 9) Removal of slag and ash; 10) Electrical equipment of thermal power plants – generator, generator cooling system, transformers, own consumption of the block; 11) Nuclear power plants; 12) Exploitation of thermal energy plants.

### Language of Instruction

Serbian (complete course)       English (complete course)       Other \_\_\_\_\_ (complete course)  
 Serbian with English mentoring       Serbian with other mentoring \_\_\_\_\_

### Assessment Methods and Criteria

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

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