

<b>Study program:</b> Industrial engineering – Mechanical engineering			
<b>Course title:</b> Technical thermodynamics			
<b>Professor/assistant:</b> Sonja Kostić			
<b>Type of course:</b> Compulsory			
<b>ECTS credits:</b> 6			
<b>Prerequisites:</b> none			
<b>Aims of the course:</b> Students gain knowledge about thermotechnics, rational energy consumption, energy conversion and energy conservation.			
<b>Learning outcomes:</b> The student completes basic thermodynamic calculations in the area of heating and cooling techniques and monitors and manages heating and cooling plants.			
<b>Syllabus:</b> <i>Theoretical part:</i> <ol style="list-style-type: none"> <li>1. Basics of thermodynamics and energy. System of units – parameters, states: specific volume, pressure and temperature and their measuring.</li> <li>2. Work, amount of heat, specific heat capacity, first and second law of thermodynamics.</li> <li>3. Ideal gases and mixtures of ideal gases.</li> <li>4. Real gases and vapor.</li> <li>5. Conversion of heat into mechanical work. Cyclic processes.</li> <li>6. Mixtures of vapor and ideal gases.</li> <li>7. Cyclic processes in cooling plants and basic work techniques of cooling plants and heating systems with heating pumps.</li> <li>8. Heat distribution, heat exchangers.</li> </ol> <i>Practical part:</i> Auditory exercises and laboratory exercises.			
<b>Literature:</b> <ol style="list-style-type: none"> <li>1. Đorđe Kozić: Termodinamika – inženjerski aspekt. Mašinski fakultet, Beograd 2007.</li> <li>2. Kozić Đ, i Šelmić R., Termodinamika i termotehnika., Zavod za udžbenike i nastavna sredstva Beograd 2007.</li> <li>3. Kozić Đ., Vasiljević B., Bekavac V. Priručnik za termodinamiku. Mašinski fakultet, Beograd 2007</li> <li>4. Milorad Bojić: Termodinamika, Fakultet inženjerskih nauka u Karagujevcu 2011</li> <li>5. Nebojša Lukić: Priručnik za termodinamiku, Fakultet inženjerskih nauka u Kragujevcu 2003.</li> </ol>			
<b>Total number of active classes:</b> 60		<b>Lectures:</b> 30	<b>Practical classes:</b> 30
<b>Teaching methods:</b> Lectures, auditory and laboratory exercises.			
<b>Grading system</b> (maximum 100 points) grading scale from 5 to 10: below 51 points grade 5, grade 6 from 51- 60 points, grade 7 from 61-70 points, grade 8 from 71-80 points, grade 9 from 81-90 points, grade 10 from 91- 100 points.			
<b>Pre-exam obligations:</b>	<b>Points:</b>	<b>Final exam:</b>	<b>Points:</b>
Activity during lectures	max 5	Oral exam	50
Practical training	max 5		
Written test(s)	max 20		
Term papers	max 20		
Minimum requirement for the final exam	30		