

<b>Study program:</b> Environmental Protection			
<b>Course title:</b> Industrial Ecology			
<b>Professor/assistant:</b> Miloš S. Ristić			
<b>Type of course:</b> elective			
<b>ECTS credits:</b> 6			
<b>Pre-requisites:</b> -			
<b>Aims of the course:</b> Prepare students to: introduce possibilities for integration of industrial systems and environment in accordance with sustainable development principles, introduce the possibility of directing products and processes to the formation of closed cycles, recognize the possibilities for achieving sustainability goals through the improvement of technical systems.			
<b>Learning outcomes:</b> Student is able to: evaluate the possibilities of improving industrial products, industrial systems and infrastructure with the aim of preserving the environment, apply in practice the acquired knowledge on the implementation of the concept of clean production in industrial processes.			
<b>Syllabus</b>			
<u>Theoretical part</u> Introduction to industrial ecology. Industrial and natural processes. Metabolism of industrial systems. Analysis of the life cycle of products and processes. Industrial products and ecosystems, their interaction. Elements of designing environmentally-friendly industrial products. Closed cycles and sectoral interconnection. Systems of interaction of industrial sectors and elements of communal infrastructure. Eco-industrial parks and networks. Strategic planning without waste production systems. Clean production as a result of the application of the principle of industrial ecology. Comparative industrial ecology - environmental protection as an enterprise strategy.			
<u>Practical part</u>			
<b>Literature</b>			
<ol style="list-style-type: none"> <li>1. D. Gvozdencovac i dr., <i>Energetska efikasnost - industrija i zgradarstvo</i>, Fakultet tehničkih nauka Novi Sad, 2012.</li> <li>2. S. Kosanović, <i>Ekološki ispravne zgrade - uvod u planiranje i projektovanje</i></li> <li>3. S. Krnjetin, <i>Ekološki ispravne zgrade - uvod u planiranje i projektovanje</i>, Prometej, 2001.</li> <li>4. M. Jovanović -Popović i dr., <i>Nacionalna tipologija stambenih zgrada Srbije</i>, Arhitektonski fakultet, 2013.</li> </ol>			
<b>Number of active classes</b>			Other forms of teaching:
Lectures: 2	Practical classes: 2	Research work:	
<b>Teaching methods</b> Theoretical lessons are conducted using audio-visual presentations in which problems are practically recognized. Students work independently on public presentation project assignments. In addition to lectures and exercises, consultations are also held regularly.			
<b>Grading system</b> (maximum 100 points), <b>grading scale</b> 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 theoretical lectures	<b>10</b>	written exam	<b>40</b>
practical training	-	oral exam	-
colloquium(s)/seminar papers	<b>40/10</b>		
<b>Sum</b>	<b>60</b>	<b>Sum</b>	<b>40</b>