

<b>Study program:</b> Mechanical engineering				
<b>Type and level of studies:</b> Doctoral studies				
<b>Course unit:</b> Multicriteria Decision Making				
<b>Teacher in charge:</b> dr Aleksandra Petrović				
<b>Language of instruction:</b> English				
<b>ECTS:</b> 5				
<b>Prerequisites:</b> None				
<b>Semester:</b> Winter				
<b>Course unit objective:</b> Introduction to the modern concepts of decision theory and learning the theoretical and practical methods for decision making.				
<b>Learning outcomes of the course unit</b> Mastering the methods of multi-criteria decision-making to solve practical engineering and business problems.				
<b>Course unit contents</b>				
<i>Theoretical classes</i>				
<ul style="list-style-type: none"> <li>• Fundamentals of decision theory. The decision process. Models and modeling. Decision making under certainty. Decision making under risk. Decision making under uncertainty. Wood and sequential decision making.</li> <li>• Solving of the model of multicriteria decision making. The method of global criteria. Lexicographical methods. Method STEM. Methods of goal programming (CP).</li> <li>• Troubleshooting Multiple Attribute Decision Making. Transforming attributes. Defining the weight coefficients for the criteria. Methods Domination. Method of simple additive weight. ELECTRE Methods I-IV. Methods PROMETHEE I-IV. Analytic hierarchy process (AHP).</li> <li>• Selected examples of multi-criteria decision-making.</li> </ul>				
<i>Practical classes</i>				
The practical problem solving multi-criteria decision-making				
<b>Literature</b>				
C.Zopounidis, P.M. Pardalos, <i>Handbook of Multicriteria Analysis</i> , Springer, 2010, e-ISBN 978-3-540-92828-7				
N.Munier, <i>A Strategy for Using Multicriteria Analysis in Decision-Making</i> , Springer, 2011, e-ISBN 978-94-007-1512-7				
G.H. Tzeng, J.J. Huang, <i>Multiple Attribute Decision Making</i> , CRC Press, Taylor & Francis Group, 2011.				
J.Fodor, M.Roubens, <i>Fuzzy Preference Modelling and Multicriteria Decision Support</i> , Springer, e-ISBN 978-94-017-1648-2				
<b>Number of active teaching hours</b>				<b>Other classes</b>
Lectures: 3	Practice: 1	Other forms of classes:	Independent work: 1	
<b>Teaching methods</b>				
Lectures. Numerical computational exercises. Seminar. The practical realization of experiments in the laboratory.				
<b>Examination methods ( maximum 100 points)</b>				
<b>Exam prerequisites</b>		<b>No. of points:</b>	<b>Final exam</b>	<b>No. of points:</b>
Student's activity during lectures			oral examination	
practical classes/tests			written examination	50
Seminars/homework		50	.....	
Project				
Other				
<b>Grading system</b>				
<b>Grade</b>	<b>No. of points</b>		<b>Description</b>	
<b>10</b>	<b>91-100</b>		Excellent	
<b>9</b>	<b>81-90</b>		Exceptionally good	
<b>8</b>	<b>71-80</b>		Very good	
<b>7</b>	<b>61-70</b>		Good	
<b>6</b>	<b>51-60</b>		Passing	
<b>5</b>	<b>Less than 51</b>		Failing	