

<b>STUDY MODULE DESCRIPTION FORM</b>		
Name of the module/subject <b>Mathematical Decision Making</b>		Code <b>1011102211011006436</b>
Field of study <b>Safety Engineering - Full-time studies - Second-</b>	Profile of study (general academic, practical) <b>(brak)</b>	Year /Semester <b>1 / 1</b>
Elective path/specialty <b>Ergonomics and Work Safety</b>	Subject offered in: <b>Polish</b>	Course (compulsory, elective) <b>obligatory</b>
Cycle of study: <b>Second-cycle studies</b>	Form of study (full-time, part-time) <b>full-time</b>	
No. of hours Lecture: <b>15</b> Classes: <b>30</b> Laboratory: <b>-</b> Project/seminars: <b>-</b>		No. of credits <b>4</b>
Status of the course in the study program (Basic, major, other) <b>(brak)</b>		(university-wide, from another field) <b>(brak)</b>
Education areas and fields of science and art		ECTS distribution (number and %)
<b>Responsible for subject / lecturer:</b>  dr Piotr Rejmenciak email: piotr.rejmenciak@put.poznan.pl tel. +48 61 665 2812 Faculty of Electrical Engineering ul. Piotrowo 3A, 60-965 Poznań		
<b>Prerequisites in terms of knowledge, skills and social competencies:</b>		
1	<b>Knowledge</b>	Students have knowledge of mathematics, particularly calculus and algebra.
2	<b>Skills</b>	Students can determine the extremes of functions of one variable, compute the partial derivatives, operate on matrices. Students can check the basic properties of the relationship.
3	<b>Social competencies</b>	Students are eager to learn.
<b>Assumptions and objectives of the course:</b> The aim of the course is to familiarize students with the different methods that help in making the best decisions.		
<b>Study outcomes and reference to the educational results for a field of study</b>		
<b>Knowledge:</b>		
1. Students know and understand methods to make optimal decisions. - [K2A-W01, K2A-W04]		
2. Students know a mathematical model and the optimization criterion for the real issues. - [K2A-W01, K2A-W04]		
<b>Skills:</b>		
1. Students are able to formulate a mathematical model of linear and nonlinear programming problems. - [K2A-U1-5, K2A-U10, K2A-U12, K2A-U18]		
2. Students can discuss the real issues of the optimal solution for any changes in the input data. - [K2A-U1-5, K2A-U10, K2A-U12, K2A-U18]		
3. Students can analyze the decision problem in terms of expectations for the results obtained and the amount of work needed to receive. - [K2A-U1-5, K2A-U10, K2A-U12, K2A-U18]		
<b>Social competencies:</b>		
1. Students understand the need and knows the possibilities of lifelong learning. - [K2A-K1, K2A-K3]		
2. Students see the opportunity to use the learned knowledge into practice. - [K2A-K1, K2A-K3]		
<b>Assessment methods of study outcomes</b>		

Formative assessment: a) In regards to classes: on the basis of two written tests. b) Regarding lectures: on the basis of oral or written assignments relating to the material covered during current or previous lectures. Collective assessment: a) In respect to classes: receive 51% of the total points is equivalent to completing the exercise, the assessment "change" every 10 percentage points. b) Considering lectures: the average of formative marks.		
<b>Course description</b>		
? Mathematic programming ? Network algorithms: determination of the shortest path in the graph, determination of the maximum flow in the transport network ? Transport Problems ? Games ? Rough set theory; ? Relations: orders ? Fuzzy set theory		
<b>Basic bibliography:</b>		
<b>Additional bibliography:</b>		
<b>Result of average student's workload</b>		
<b>Activity</b>		<b>Time (working hours)</b>
1. Participation in lectures		15
2. Participation in exercises		30
3. Consultation		5
4. Preparing for training		15
5. Preparing for colloquia		20
<b>Student's workload</b>		
<b>Source of workload</b>	<b>hours</b>	<b>ECTS</b>
Total workload	85	4
Contact hours	50	2
Practical activities	50	2