

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Mathematical Decision Making		Code 1011105211010346436
Field of study Safety Engineering - Part-time studies - Second-	Profile of study (general academic, practical) (brak)	Year /Semester 1 / 1
Elective path/specialty Ergonomics and Work Safety	Subject offered in: Polish	Course (compulsory, elective) obligatory
Cycle of study: Second-cycle studies	Form of study (full-time, part-time) part-time	
No. of hours Lecture: 12 Classes: 16 Laboratory: - Project/seminars: -		No. of credits 4
Status of the course in the study program (Basic, major, other) (brak)		(university-wide, from another field) (brak)
Education areas and fields of science and art the sciences Mathematical sciences		ECTS distribution (number and %) 4 100% 4 100%
Responsible for subject / lecturer: dr Piotr Rejmenciak email: piotr.rejmenciak@put.poznan.pl tel. +48 61 665 2812 Faculty of Electrical Engineering ul. Piotrowo 3A, 60-965 Poznań		
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	Students have knowledge of mathematics, particularly calculus and algebra.
2	Skills	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	Social competencies	Students are eager to learn.
Assumptions and objectives of the course: The aim of the course is to familiarize students with the different methods that help in making the best decisions.		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
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]		
Skills:		
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]		
Social competencies:		
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]		
Assessment methods of study outcomes		

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.		
Course description		
? 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		
Basic bibliography:		
Additional bibliography:		
Result of average student's workload		
Activity		Time (working hours)
1. Participation in lectures		12
2. Participation in exercises		16
3. Consultation		15
4. Preparing for training		15
5. Preparing for colloquia		20
Student's workload		
Source of workload	hours	ECTS
Total workload	78	4
Contact hours	43	2
Practical activities	16	1