WARSAW SCHOOL OF INFORMATION TECHNOLOGY
UNDER THE AUSPICES OF THE POLISH ACADEMY OF SCIENCES
01-447 Warsaw \ Newelska street 6 \ www.WIT.edu.pl

Faculty of IT Management

Konspekt zajęć przedmiotu

KOMPUTEROWE WSPOMAGANIE DECYZJI W PROBLEMACH WIELOKRYTERIALNYCH

1. **Semestr i rok akademicki**   semestr letni 2019/2020

2. **Prowadzący zajęcia**   prof. dr hab. inż. Ignacy Kaliszewski

3. **Rodzaj i system studiów**

Rodzaj i system studiów	Stacjonarne	Niestacjonarne
Studia I stopnia		
Studia II stopnia		X
Studia jednolite magisterskie		

4. **Forma zajęć**

Forma zajęć	
Wykład	X
Ćwiczenia audytoryjne	
Laboratorium komputerowe	X
Projekt	X
Konwersatorium	
Seminarium	

5. **Tematyka zajęć**

Lp.	Liczba godzin	Temat zajęć
1	2/2	Introduction to the subject. Multiple criteria decision making. The notions of dominance and efficiency. Solving multiple criteria decision making problems according to the four phase scheme of Herbert Simon. Applications and case studies related to the issues of the global impact: 1. radiotherapy planning 2. university rankings.
2	2/2	Methodology of selecting a single variant: the mathematical model, computer based techniques: decision making support. Numerical problem solving with data provided by the lecturer. Presentations of current methodology implementations in business and social life, as reported in the literature.
3	2/2	Methodology for multiple criteria problem of selecting portfolios with discrete components: the mathematical model, computer based techniques; decision making support. Numerical problem solving with data provided by the lecturer. Presentations of current methodology implementations in business and social life, as reported in the literature. Presentations of problem classes that can be modeled in the similar manner.

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4	2/2	Methodology for multiple criteria problem of selecting portfolios with continuous components: multiple criteria diet selection, other problems where compounds result from mixing ingredients: the mathematical model, computer based techniques, decision making support. Numerical problem solving with data provided by the lecturer. Presentations of the current methodology implementations in business and social life, as reported in the literature. Presentations of problem classes that can be modeled in the similar manner.
5	2/2	The general methodology of multiple criteria decision support. The generic multicriteria decision making support, the notions of the vector of concessions and the compromise half line. Comparative analysis to other methods.
6	2/2	Decision support in the problem of selecting a single variant: decision maker – computer interactions. Numerical problem solving by students.
7	2/2	Decision support in multiple criteria problems of selecting portfolios with discrete components: decision maker – computer interactions. Decision support in multiple criteria problems of selecting portfolios with continuous components: decision maker – computer interactions. The case study: the analysis of portfolio investment in financial assets with the mean-variance Markowitz model.
8	2/2	Formalization of multiple criteria decision support problems in terms of relations: relations types, ordering relations, decision maker preferences. Domains of applications (computer science, management).

For the project students are to make a comprehensive four step decision making analysis, from problem formalization, modeling, solution choice and solution verification, on a proposed decision making problem framed into multiple criteria setting. They are expected to provide the final solution with collected, preferably real, data.

6. Formy sprawdzenia

Forma sprawdzenia	Liczba punktów w ramach punktacji przedmiotu
Egzamin	**50**
Kolokwia	
Sprawdziany	
Prace domowe	
Aktywność na zajęciach	
Projekt	**50**
Prezentacje	
Inne formy	
Razem punktów za składową przedmiotu	**100**