

Decision support - mathematical approach

profile	general academics
degree	first degree
programme	ERASMUS
semester	1
part time / full time	full time
ECTS	5
coordinator	dr inż. Jan Bihałowicz

form of the activity: exercise

hours	30
prerequisites	Knowledge of high school mathematics and selected elements of mathematics knowledge from undergraduate studies.
objectives	The purpose of teaching the subject is to acquire the ability to formulate in mathematical language the problems encountered in engineering practice and to master the tools for their precise solution. The learning result is the ability to use mathematical methods in engineering applications; mathematical description of phenomena and processes; abstract understanding of problems.
methods	Lecture, discussion
own work	Independent work with teaching materials, study of literature, development of homework assignments, preparation for the exam.
basic literature	1. Cegiełka K., Matematyczne wspomaganie decyzji, SGSP, Warszawa 2012. 2. Stadnicki J., Teoria i praktyka rozwiązywania zadań optymalizacji, WNT, Warszawa 2006. 3. Malawski M., Wieczorek A., Sosnowska H., Konkurencja i kooperacja. Teoria gier w ekonomii i naukach społecznych, PWN, Warszawa 2004.
supplementary literature	1. Kacprzyk J., Wieloetapowe sterowanie rozmyte, WNT, Warszawa 2001. 2. Watson J., Strategia. Wprowadzenie do teorii gier, WNT, Warszawa 2005. 5. Straffin P., Teoria gier, Scholar, Warszawa 2001.

contents	hours
Linear programming, duality, usage of Kroneker-Capelli theorem in linear programming	7
Game theory	8
Elements of network theory	7
Fuzzy sets, Łukasiewicz logic	8

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