

Tárgytematika / Course Description

Fuzzy decision analysis

NGD_MDAA78_1

Tárgyfelelős neve /

Teacher's name: dr. Fullér Róbert

Félév / Semester: 2023/24/2

Beszámolási forma /

Assesment: Vizsga

Tárgy heti óraszám /

Teaching hours(week): 0/0/0

Tárgy féléves óraszám /

Teaching hours(sem.): 12/0/0

OKTATÁS CÉLJA / AIM OF THE COURSE

Learning objectives: To explain

- how to make decisions under strict uncertainty,
- how to make decisions with risk,
- how to choose appropriate aggregation operators to decision process where trade-offs are allowed.
- how to solve linear programming problems with soft objective function and constraints
- how to model the decision maker's preferences by fuzzy sets
- how to "solve" multiple objective programs using fuzzy logic;

TANTÁRGY TARTALMA / DESCRIPTION

Topics:

1. Decision problems. Preference orders and value functions. Utility theory. Risk attitudes.
2. Fuzzy sets and logic. Bellman and Zadeh's principle to fuzzy decision. Aggregation operators [t-norms, t-conorms, OWA, MICA]. Fuzzy linear programming.
3. Fuzzy approaches to multiple objective programming. Fuzzy screening systems. OWA operators: Further issues. The Analytic Hierachy Process. Exercises and solutions.

SZÁMONKÉRÉSI ÉS ÉRTÉKELÉSI RENDSZERE / ASSESMENT'S METHOD

Grade: To write a case study.

KÖTELEZŐ IRODALOM / OBLIGATORY MATERIAL

- Christer Carlsson and Robert Fullér, Fuzzy Reasoning in Decision Making and Optimization,
- Studies in Fuzziness and Soft Computing Series, Vol.82, Springer-Verlag, Berlin-Heidelberg, 2002, 338 pages. [ISBN: 978-3-7908-2497-1] doi: 10.1007/978-3-7908-1805-5

AJÁNLOTT IRODALOM / RECOMMENDED MATERIAL

- Christer Carlsson and Robert Fullér, Possibility for Decision: A Possibilistic Approach to Real Life Decisions, Studies in Fuzziness and Soft Computing, vol. 270, Springer-Verlag, Berlin-Heidelberg, 2011, 249 pages, [ISBN: 978-3-642-27128-1] doi: 10.1007/978-3-642-22642-7