

Tárgytematika / Course Description

Logic

GKNM_INTA056

Tárgyfelelős neve /

Teacher's name: dr. Fullér Róbert

Félév / Semester: 2022/23/1

Beszámolási forma /

Assesment: Vizsga

Tárgy heti óraszám /

Teaching hours(week): 2/2/0

Tárgy féléves óraszám /

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

OKTATÁS CÉLJA / AIM OF THE COURSE

We study the basic chapters of mathematical logic emphasizing on the wider application of logical tools in computing.

TANTÁRGY TARTALMA / DESCRIPTION

A short history of mathematical logic. The subject and the goal of logic.

Propositional logic. Logical values and operations.

Logical expressions, tautologies and truth tables.

Set-theoretical approach to logic.

Relations between set-theoretical and logical operations.

Multi-valued logics. Fuzzy logic. Boolean logic versus fuzzy logic.

The linguistic variable "Truth".

Evaluating the truth value of quantified propositions. Anding the propositions.

Oring the propositions. Orlike and andlike OWA operators.

Orness and andness degrees. Linguistic quantifiers.

Fuzzy implications. The theory of approximate reasoning.

Fuzzy rule-based systems.

Fuzzy reasoning schemes.

Knowledge-based expert systems. Reasoning methods in knowledge-based systems.

Introduction to logic programming.

SZÁMONKÉRÉSI ÉS ÉRTÉKELÉSI RENDSZERE / ASSESSMENT'S METHOD

A state-of-the-art survey of a selected topic. The survey should be of 16-20 pages.

KÖTELEZŐ IRODALOM / OBLIGATORY MATERIAL

Smullyan Raymond M., What is the Name of This Book? The Riddle of Dracula and Other Logical Puzzles, Dover Publication Inc., 2011. ISBN 9780486481982

Robert Fullér, [PDF] Neural Fuzzy Systems, Abo Akademi's tryckeri, Abo, ESF Series A:443, 1995, 249 pages. [ISBN 951-650-624-0, ISSN 0358-5654]