

COURSE TITLE:

FUZZY LOGIC AND APPLICATIONS

INSTRUCTORS:

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SYLLABUS:

Fuzzy logic (Definition, philosophy, fuzziness vs. probability), from crisp sets to fuzzy sets, Generalizations of classical operations, operations on fuzzy sets, Laws of contrabability and excluded middle, Fuzzy Entropy and Subsethood, Kosko's Rectangular , Fuzzy Relations, Fuzzy Equivalence Relations, Fuzzy Orderability Relations with Applications, Fuzzy t-norms, Fuzzy t-conorms, Fuzzy Implications, with Applications in Approximate Reasoning, applications in MATLAB, a-cuts of fuzzy numbers, fuzzy arithmetic, Basic Theorems of fuzzy Logic, as the Theorem of Extended Principle, Fuzzy Numbers, Fuzzy Linear Regression Modeling, Hybrid Models (using statistical and fuzzy logic methods) in estimating of parameters

BIBLIOGRAPHY:

1. GEORGE J. KLIR, BO YUAN, FUZZY SETS AND FUZZY LOGIC, Theory and Applications, PRENTICE-HALL, 1995.
2. Χ. ΤΖΙΜΟΠΥΛΟΣ, Β. ΠΑΠΑΔΟΠΟΥΛΟΣ, ΑΣΑΦΗΣ ΛΟΓΙΚΗ ΜΕ ΕΦΑΡΜΟΓΕΣ ΣΤΙΣ ΕΠΙΣΤΗΜΕΣ ΤΟΥ ΜΗΧΑΝΙΚΟΥ, ΕΚΟΣΕΙΣ ΖΗΤΗ, 2013.