

MT-519	Fuzzy Logic and Neural Networks
	<p><u>Introduction to Fuzzy Sets and Fuzzy Relations:</u> Fuzzy set operations, Properties of fuzzy sets, Fuzzy relations, Cardinality of fuzzy relations, Operations on fuzzy relations.</p> <p><u>Logic and Fuzzy Systems:</u> Logic, Classical logic, Fuzzy logic, Approximate reasoning, Other forms of the implication operation. Fuzzy systems, Natural language, Linguistic hedges, Fuzzy (rule-based) systems, Graphical techniques of inference.</p> <p><u>Neural Networks and Fuzzy Systems Simulation:</u> Artificial neural networks, Architects and behaviours, Supervised, Unsupervised and reinforcement learning, Relational equations, Nonlinear simulation using fuzzy systems, Fuzzy associative memories (FAMs).</p> <p><u>Decision Making with Fuzzy Information:</u> Fuzzy synthetic evaluation, Fuzzy ordering, Non transitive ranking, Preference and consensus, Multi objective decision making, Fuzzy bayesian decision method, Decision making under fuzzy states and fuzzy actions.</p> <p><u>Reference Books:</u></p> <ol style="list-style-type: none">1. Ross T.J, <i>Fuzzy Logic with Engineering Applications</i>, 2nd Edition, John Wiley & Sons, 2004.2. Yen J and Langari R, <i>Fuzzy Logic Intelligence, Control, and Information</i>, Pearson, 2009.