

2nd Semester

MTCE 602 A

SOFT COMPUTING

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Credits : 4

Neural Networks: History, overview of biological Neuro - system, Mathematical Models of Neurons, ANN architecture, Learning rules, Learning Paradigms-Supervised, Unsupervised and reinforcement Learning ANN training Algorithms-perceptions, Training rules, Delta, Back Propagation Algorithm, Multilayer Perception Model, Hopfield Networks, Associative Memories, Applications of Artificial Neural Networks.

Fuzzy Logic: Introduction to Fuzzy Logic, Classical and Fuzzy Sets: Overview of Classical Sets, Membership Function; Fuzzy rule generation.

Operations on Fuzzy Sets: Compliment, Intersections, Unions, Combinations of Operations, Aggregation Operations.

Fuzzy Arithmetic: Fuzzy Numbers, Linguistic Variables, Arithmetic Operations on Intervals & Numbers, Lattice of Fuzzy Numbers, Fuzzy Equations.

Classical Logic, Multi-valued Logics, Fuzzy Propositions, Fuzzy Qualifiers, Linguistic Hedges.

Uncertainty based Information: Information & Uncertainty, Non specificity of fuzzy & Crisp sets, Fuzziness of Fuzzy Sets.

Reference:

1. Neural Networks – Simon Haykin
2. Neural Networks – Kosko
3. Fuzzy Logic & Fuzzy sets - Klir & Yuan