F.M.-70

SOFT COMPUTING (3-0-0)Cr.-3

BCS-422

Module I
Neural Networks: Fundamentals of Neural Networks: Models of an artificial Neuron, Neural Network Architecture, Learning methods

Back Propagation Networks: Architecture of a Back propagation Network: back propagation, Learning Effect of Tunning parameters of the Back propagation Neural Network, variation of standard Back Propagation Algorithms.

Module II
Associative memory: Auto correlators, Kosko's Discrete BAM, Exponential BAM, Associative memory for Real-coded Pattern Pairs, Applications.

Adaptive Resonance Theory:
ART1, ART2, Applications

Module III
FUZZY LOGIC
Fuzzy set theory: crisp sets, fuzzy sets, crisp relations, fuzzy relations, Fuzzy Systems: Crisp logic predicate logic, fuzzy logic, fuzzy Rule based system, Defuzzification Methods.

GENETIC ALGORITHMS
Fundamentals of genetic algorithms: Encoding, Fitness functions, Reproduction.
Genetic Modeling:

Cross cover, Inversion and deletion, Mutation operator, Bit-wise operators, Bitwise operators used in GA. Convergence of Genetic algorithm. Applications, Real life Problems.

Module IV
Hybrid Systems:
Hybrid system, neural Networks, fuzzy logic and genetic algorithms hybrids.
Genetic Algorithm based Back propagation Networks: GA based weight determination applications: Fuzzy Back Propagation Networks, Fuzzy Associative Memories: Single Association FAM, Fuzzy Hels FAMS, Fuzzy logic controlled genetic Algorithms soft computing tools, Fuzzy constraints, GA in fuzzy logic controller design, Applications.

Text Books:

1. Neural Networks, Fuzzy Logic, and Genetic Algorithm (Synthesis and Application) S.Rajasekaran, G.A. Vijayalakshmi Pai, PHI

Reference Book:

1. Neuro Fuzzy and Soft Computing, J.S.R.JANG, C.T.Sun, E.Mitzutani, PHI