

Soft Computing : Course Content , Lecture hours – 42 , notes, slides : 398

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Course Content

Soft Computing

Soft Computing topics : Introduction to soft computing, Fundamentals of neural network, Back propagation network, Associative memory, Adaptive resonance theory, Fuzzy set theory, Fuzzy systems, Genetic algorithms & modeling, and Hybrid systems.

Course Content

Soft Computing

	Content	Hrs
01	Introduction to Soft Computing : Introduction, Fuzzy Computing, Neural Computing, Genetic Algorithms, Associative Memory, Adaptive Resonance Theory, Applications.	1-6
02	Fundamentals of Neural Network : Introduction, Model of Artificial Neuron, Architectures, Learning Methods, Taxonomy of NN Systems, Single-Layer NN System, Applications.	7-14
03	Back Propagation Network : Background, Back-Propagation Learning, Back-Propagation Algorithm.	15-20
04	Associative Memory : Description, Auto-associative Memory, Bi-directional Hetero-associative Memory.	21-24
05	Adaptive Resonance Theory : Recap - supervised, unsupervised, backprop algorithms; Competitive Learning; Stability-Plasticity Dilemma (SPD), ART Networks, Iterative Clustering, Unsupervised ART Clustering.	25-28
06	Fuzzy Set Theory : Introduction, Fuzzy set : Membership, Operations, Properties; Fuzzy Relations.	29-34
07	Fuzzy Systems : Introduction, Fuzzy Logic, Fuzzification, Fuzzy Inference, Fuzzy Rule Based System, Defuzzification	35-36
08	Fundamentals of Genetic Algorithms : Introduction, Encoding, Operators of Genetic Algorithm, Basic Genetic Algorithm.	37-40
09	Hybrid Systems : Integration of Neural Networks, Fuzzy Logic and Genetic Algorithms, GA Based Back Propagation Networks, Fuzzy Back Propagation Networks, Fuzzy Associative Memories, Simplified Fuzzy ARTMAP.	41-42