

Syllabus		
Unit No	Contents	Mapped CO
I	Introduction: Neural Networks, Application scope of neural networks, Application scope of Neural Networks, Fuzzy logic, Genetic Algorithm, Hybrid Systems, Soft computing. Artificial Neural Network: An Introduction, Fundamental Concept, Evolution of Neural Networks, Basic models Artificial neural network, Important Terminologies of ANNs, McCulloch-Pitts Neuron, Linear Separability, Hebb Network.	CO1
II	Supervised Learning Network: Introduction, Perceptron Networks, Adaptive Linear Neuron, Multiple adaptive Linear neurons, Back Propagation Network. Unsupervised Learning Network: Introduction, Fixed weight Competitive Nets, Counter Propagation Networks, Adaptive Resonance Theory Network.	CO1 CO2
III	Introduction to Fuzzy Logic, Classical Sets and Fuzzy Sets: Introduction to Fuzzy Logic, Classical Sets(Crisp Sets):Operations on Classical Sets, Fuzzy Sets: Fuzzy Set Operations. Classical Relations and Fuzzy Relation: Introduction, Cartesian Product of Relation, Classical Relation, Fuzzy Relations.	CO1 CO3
IV	Genetic Algorithm: Introduction, Biological background, Traditional Optimization and Search Techniques: Gradient-Based Local Optimization method, Random Search, Stochastic Hill Climbing, Simulated Annealing, Symbolic Artificial Intelligence Genetic Algorithm and Search space, Genetic Algorithm Vs Traditional Algorithms.	CO1 CO4
V	Basic Terminologies in Genetic Algorithm: Simple GA, General Genetic Algorithm, Operators in Genetic Algorithm: Encoding, Selection, Crossover(Recombination),Mutation, Stopping Condition for Genetic Algorithm Flow: Best Individual, Worst Individual, Sum of Fitness, Median Fitness	CO1 CO4

Learning Resources
Text Books
1. Principles of Soft Computing, S.N.Sivanandam, S.N.Deepa, Wiley India Pvt. Ltd., Second Edition, 2011.
References
1. Principles of Soft Computing, S.N.Sivanandam, S.N.Deepa, Wiley India Pvt. Ltd., 2018, Paperback. 2. Genetic Algorithms: Search and Optimization. E. Goldberg 3. Fuzzy Sets and Fuzzy Logic-Theory and Applications, George J. Klir and Bo Yuan, Prentice Hall, 2015, Paperback.
E- Resources and other Digital Material
1. https://nptel.ac.in/courses/106/105/106105173/ 2. https://cse.iitkgp.ac.in/~dsamanta/courses/sca/index.html#resourceS