

# Lecture Plan

**M.TECH COMPUTER ENGINEERING**  
**SUBJECT NAME: SOFT COMPUTING**

**CODE: MTCE-17-104**  
**NO OF CREDITS: 4**

Unit	Topic	Duration (in hours)	Reference
I	Neural Networks: History, overview of biological Neuro-system, Mathematical Models of Neurons	2	“Neural Networks: A classroom approach”, Satish Kumar , Tata McGraw Hill 5.  Haykin S., “Neural Networks-A Comprehensive Foundations”, Prentice-Hall International, New Jersey, 1999
	Mathematical Models of Neurons, ANN architecture, Learning rules, Learning Paradigms- Supervised, Unsupervised and reinforcement Learning	2	
	ANN training Algorithms-perceptrons, Training rules, Delta	2	
	Back Propagation Algorithm, Multilayer Perception Model	3	
	Hopfield Networks, Associative Memories	2	
	Applications of Artificial Neural Networks	3	
II	Fuzzy Logic: Introduction to Fuzzy Logic, Classical and Fuzzy Sets: Overview of Classical Sets	2	“Fuzzy sets and Fuzzy Logic: Theory and applications”,G.J. Klir,B.Yuan, PHI  “Introduction to Fuzzy sets and Fuzzy Logic”, M.Ganesh , PHI
	Membership Function, Fuzzy rule generation	2	
	Fuzzy control/ expert systems	2	
III	Operations on Fuzzy Sets: Compliment, Intersections, Unions, Combinations of Operations, Aggregation Operations.	3	Fuzzy sets and Fuzzy Logic: Theory and applications”,G.J. Klir,B.Yuan, PHI
IV	Fuzzy Arithmetic: Fuzzy Numbers, Linguistic Variables, Arithmetic Operations on Intervals & Numbers.	2	
	Lattice of Fuzzy Numbers, Fuzzy Equations	2	
V	Classical Logic, Multivalued Logics, Fuzzy Propositions	2	“Neural Networks, Fuzzy Logic and Genetic Algorithms: Synthesis and Applications” S. Rajasekaran G. A. Vijayalakshmi Pai  From papers and ppts
	Fuzzy Qualifiers, Linguistic Hedges	2	
	Uncertainty based Information: Information & Uncertainty	2	
	Nonspecificity of Fuzzy & Crisp Sets	2	
	Fuzziness of Fuzzy Sets	2	
	Genetic Algorithms, Scope & application areas	2	
	solution of 0-1Knapsack problem using GA	2	
	solution of Travelling Salesman Problem using GA	2	
Total Lectures		43	