

NEURAL NETWORKS AND FUZZY SYSTEMS

(Program Elective-V)

Course Code	19IT4702E	Year	IV	Semester	I
Course Category	PE	Branch	IT	Course Type	Theory
Credits	3	L-T-P	3-0-0	Prerequisites	Artificial Intelligence
Continuous Internal Evaluation:	30	Semester End Evaluation:	70	Total Marks:	100

Course Outcomes		Blooms Taxonomy Level
Upon successful completion of the course, the student will be able to		
CO1	Understand types of neural networks and fuzzy logic.	L2
CO2	Determine various Neural Network topologies and paradigms	L3
CO3	Apply Concepts of Fuzzy Logic and Fuzzy Neural Networks	L3

Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations (H:High, M:Medium, L:Low)														
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	1											1	
CO2	1	2	2										1	
CO3	2			2			2						1	

Syllabus		
Unit No	Contents	Mapped CO
I	Biological Neural Networks: Neuron Physiology, Neural Diversity, Specifications of the Brain, The Eye's Neural network, Areas for further Investigation.	CO1
II	Artificial Neural Networks: Concepts Neural attributes, Modelling, Basic Models of Neuron, and Learning in ANN, Characteristics of ANNs, and Important Parameters.	CO1 CO2
III	Artificial Neural Network Topologies: Modelling ANNs, ANNs Learning and Program, Learning Algorithm, Discrimination ability, ANN adaptability, The stability-Plasticity Dilema	CO1 CO2
IV	Neural Networks Paradigms: McCulloch-Pitts Model, The perceptron, ADALINE and MADLINE Models, Winner-Takes- All Learning Algorithm, Back Propagation Algorithm, Hop field Model.	CO1 CO2
V	Concepts of Fuzzy Logic and Fuzzy Neural Networks: Propositional Logic, the Membership Function, Fuzzy Logic, Deffuzification of fuzzy logic, Time-dependent Fuzzy Logic, Fuzzy Artificial Neural Network(FANN), Fuzzy Neural Example, Neuro-Fuzzy control, Some Applications.	CO1 CO3

Learning Resources
Text Books
1. Understanding Neural Networks and Fuzzy Logic, Stamatios V.Kartalopoulos,PHI.
References
1. Neural networks and Fuzzy Systems, Bart Kosko, PHI. 2. Neural Networks and Fuzzy Logic, Vinoth KumarK, Saravana Kumar R, Sk Kataria & sons, 2010