Subject Code : P8CSE4B

ELECTIVE – IV - 3. ARTIFICIAL NEURAL NETWORKS

Unit I

BASICS OF ARTIFICIAL NEURAL NETWORKS : Characteristics of Neural Networks – Historical development of Neural Network principles – Artificial Neural Networks: Terminology – Models of Neuron – Topology – Basic Learning Laws.

Unit II

ACTIVATION AND SYNAPTIC DYNAMICS : Introduction – Activation Dynamic Models – Synaptic Dynamic Model – Learning Models – Learning Methods.

Unit III

FUNCTIONAL UNITS OF ANN FOR PATTERN RECOGNITION TASKS : Pattern Recognition Problem – Basic Functional Units – Pattern Recognition Tasks by the Functional Units – FEED FORWARD NEURAL NETWORKS: Introduction – Analysis of Pattern Association Networks – Analysis of Pattern classification Networks – Analysis of Pattern Mapping Networks.

Unit IV

FEEDBACK NEURAL NETWORKS : Introduction – Analysis of Linear Auto Associative FF Networks – Analysis of Pattern Storage Networks. COMPETITIVE LEARNING NEURAL NETWORKS : Introduction – Components of a Competitive Learning Network – Analysis of Feed back Layer for Different Output Functions – Analysis of Pattern Clustering Networks – Analysis of Feed Mapping Network.

Unit V

APPLICATIONS OF NEURAL SYSTEMS : Applications of Neural Algorithms and Systems character Recognition – Expert Systems Applications – Neural Network Control Applications, Spatio – Temporal Pattern Recognition – Neocognitron and other Applications.

Text Books:

1. For Units I to IV: "ARTIFICIAL NEURAL NETWORKS", B.YEGNANARAYANAN,Eastern Economy edition – Chapter 1, 2.
2. For Unit – V: "INTRODUCTION TO ARTIFICIAL NEURAL SYSTEMS" JACEKM.ZURADA (1994) – Jaico Publishing House.

Reference Books:

"Introduction to the theory of Neural Computation", - J.Hertz, A.Krogh., and R.G. Palmer, Addison – Wesley 1991