MP5092 SOFT COMPUTING TECHNIQUES

DETAILED SYLLABUS

OBJECTIVES

- To know the basics of artificial neural networks
- To provide adequate knowledge about feed forward /feedback neural networks
- To apply the concept of fuzzy logic in various systems.
- To have the idea about genetic algorithm
- To provide adequate knowledge about the applications of Soft Computing.

UNIT I ARTIFICIAL NEURAL NETWORK

Introduction- Basic concepts of Neural Network- Model of an Artificial Neuron- Characteristics of Neural Network- Learning Methods- Backpropagation Network Architecture Back propagation Learning-Counter Propagation Network- Hopfield/Recurrent Network Adaptive Resonance Theory.

UNIT II FUZZY LOGIC

Basic concepts of Fuzzy Logic-Fuzzy Sets and Crisp Sets-Fuzzy Set Theory and Operations-Properties of Fuzzy Sets-Fuzzy and Crisp relations, Fuzzy to Crisp Conversion Membership Functions-Interference in Fuzzy Logic-Fuzzy if-then Rules, Fuzzy implications and Fuzzy Algorithms, Fuzzification & Defuzzification-Fuzzy Controller.

UNIT III NEURO-FUZZY MODELLING

ANFIS Architecture-Classification and Regression Trees-Data Clustering algorithms Rule base Structure Identification.

UNIT IV GENETIC ALGORITHMS

Basic concepts-Working Principle-Inheritance Operators-Cross Over-Inversion & Deletion Mutation Operator-Generation Cycle.

UNIT V APPLICATIONS OF SOFTCOMPUTING

Genetic Algorithm Application- Bagley and Adaptive Game-Playing Program- Greg Viols Fuzzy Cruise Controller-Air Conditioner Controller-Application of Back Propagation Neural Network.

Diploma, Anna University-UG, PG., HSC & SSLC

Notes   *Available @*
Syllabus
Question Papers   www.AllAbtEngg.com
Results and Many more…

REFERENCES

1. George J. Klir and Bo Yuan, „Fuzzy Sets and Fuzzy Logic Theory and Applications‟, Printice Hall of India, 2002.

2. J.S.R.Jang,C.T.Sun and E.Mizutani,"Neuro-Fuzzy and Soft Computing",PHI,2004, Pearson Education 2004.

3. Laurene Fausett,"Fundamentals of Neural Networks: Architectures, Algorithms and Applications", Pearson Education India, 2006.

4. S.Rajasekaran and G.A.V.Pai."Neural Networks, Fuzzy Logic and Genetic Algorithms", PHI, 2010.

5. 3. Timothy J Ross, "Fuzzy logic with Engineering Applications", John Wiley and Sons, 2009.

6. Zimmermann H.J."Fuzzy Set Theory and Its Application" Springer International Edition, 2011.