

INT518:SOFT COMPUTING LABORATORY

Course Outcomes: Through this course students should be able to

CO1 :: outline the basic syntax and libraries of python

CO2 :: classify the different pattern using different neural network algorithms

CO3 :: use fuzzy logic and reasoning to handle uncertainty and solve engineering problems

CO4 :: examine the genetic algorithm on different problems.

CO5 :: evaluate the performance and time complexity of hybrid systems.

CO6 :: develop the optimal models using available soft computing tools to solve real world problems.

List of Practicals / Experiments:

Neural Networks

- Neural Networks using Python Libraries
- Creation of single and multi-layer perceptrons for pattern recognition.
- Creation of Back Propagation Neural Networks for pattern Recognition.
- Creation of Radial basis function Neural Networks for pattern Recognition.
- Creation of SOM network for pattern classification.

Fuzzy Systems

- Fuzzy Logic using Python
- Fuzzy set, operations on fuzzy set, Fuzzification
- Fuzzy System Implementation
- ANFIS

Genetic Algorithms and Optimizations

- Genetic Algorithm and Optimization using Python
- Implementation of GA operators
- Problem solving and optimization using GA
- Swarm intelligence techniques like ACO and BCO
- Cuckoo Search Implementation

Text Books: 1. SOFT COMPUTING WITH MATLAB by N.P. PADHY, OXFORD UNIVERSITY PRESS

References: 1. PRINCIPLES OF SOFT COMPUTING by S. N. SIVANANDAM, S.N. DEEPA, WILEY
2. NEURO-FUZZY AND SOFT COMPUTING: A COMPUTATIONAL APPROACH TO LEARNING AND MACHINE INTELLIGENCE by JANG, SUN & MIZUTANI, PRENTICE HALL