SOFT AND EVOLUTIONARY COMPUTING [As per Choice Based Credit System (CBCS) scheme] (Effective from the academic year 2016 -2017) SEMESTER – VII			
Subject Code	15CS751	IA Marks	20
Number of Lecture Hours/Week	3	Exam Marks	80
Total Number of Lecture Hours	40	Exam Hours	03
CREDITS – 03			

Course objectives: This course will enable students to

- Familiarize with the basic concept of soft computing and intelligent systems
- Compare with various intelligent systems
- Analyze the various soft computing techniques

Module – 1	Teaching Hours
Introduction to soft computing: ANN, FS,GA, SI, ES, Comparing among intelligent systems ANN: introduction, biological inspiration, BNN&ANN, classification, first Generation NN, perceptron, illustrative problems **Text Book 1: Chapter1: 1.1-1.8, Chapter2: 2.1-2.6**	**8 Hours**
Module – 2	
Adaline, Medaline, ANN: (2^{nd} generation), introduction, BPN, KNN,HNN, BAM, RBF,SVM and illustrative problems **Text Book 1: Chapter2: 3.1,3.2,3.3,3.6,3.7,3.10,3.11**	**8 Hours**
Module – 3	
Fuzzy logic: introduction, human learning ability, undecidability, probability theory, classical set and fuzzy set, fuzzy set operations, fuzzy relations, fuzzy compositions, natural language and fuzzy interpretations, structure of fuzzy inference system, illustrative problems **Text Book 1: Chapter 5**	**8 Hours**
Module – 4	
Introduction to GA, GA, procedures, working of GA, GA applications, applicability, evolutionary programming, working of EP, GA based Machine learning classifier system, illustrative problems **Text Book 1: Chapter 7**	**8 Hours**
Module – 5	
Swarm Intelligent system: Introduction, Background of SI, Ant colony system Working of ACO, Particle swarm Intelligence(PSO). **Text Book 1: 8.1-8.4, 8.7**	**8 Hours**

Course outcomes: The students should be able to:

- Understand soft computing techniques
- Apply the learned techniques to solve realistic problems
- Differentiate soft computing with hard computing techniques

Question paper pattern:
The question paper will have ten questions.
There will be 2 questions from each module.
Each question will have questions covering all the topics under a module.
The students will have to answer 5 full questions, selecting one full question from each module.

Text Books:
1. Soft computing : N. P Padhy and S P Simon , Oxford University Press 2015
Reference Books:
1. Principles of Soft Computing, Shivanandam, Deepa S. N Wiley India, ISBN 13: 2011

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