**Soft Computing and Applications (3 – 0 – 0 3)**

**Target Group:** B. Tech, M. Tech. and Ph. D. students of engineering and science disciplines other than Electrical Sciences

**Objectives**

1. To introduce theory, concepts and algorithms of artificial neural networks and fuzzy logic.
2. To introduce of bio-inspired computing and related techniques.
3. To solve optimization-related problems of engineering, science and management disciplines.

**Contents**

1. **Introduction to soft computing:** Soft computing vs hard computing, Adaptive systems and update mechanisms, and Need of soft computing to solve engineering and management problems.
3. **Fuzzy logic:** Theory and principles of TS and MF systems.
4. **Bio/Nature-inspired techniques based optimization:** Genetic algorithm, Differential evolution, Particle swarm optimization, Ant colony optimization, and Bacterial foraging algorithm.
5. **Multi-objective optimization:** Non-dominated sorting genetic algorithm – II, Multi-objective particle swarm optimization, and Their applications.
6. **Development of intelligent and hybrid systems.**
7. **Applications of ANN, fuzzy logic and bioinspired techniques to real life problems**

**Text/Reference Books**


Research publications (will be suggested during the lectures)