

DEPARTMENT OF INFORMATION TECHNOLOGY
NATIONAL INSTITUTE OF TECHNOLOGY SRINAGAR

Course	Code	L	T	P	Credits
Natural Algorithms	IT E14	3	1	0	4

UNIT I

INTRODUCTION TO NATURAL COMPUTING:

Three facets of natural computing, Natural computing algorithms overview, Families of naturally inspired algorithms.

UNIT II

INTER-CELL SIGNALLING AND BIO-INSPIRED NETWORKING:

Juxtacrine Signaling, Delta-Notch Signaling, Biologically inspired networking.

UNIT III

EVOLUTIONARY COMPUTING:

Introduction to Evolutionary computing, Genetic algorithm, Evolution strategies and Evolutionary programming, Canonical differential evolution algorithm, Genetic Programming.

UNIT IV

SOCIAL COMPUTING:

Particle swarm algorithms, Ant algorithms, Other foraging algorithms - Honeybee foraging, Other social algorithms - Glow Worm and Bat algorithm.

UNIT V

IMMUNOCOMPUTING:

Natural immune system, Artificial immune algorithms.

Recommended Book:

Natural Computing Algorithms by Anthony Brabazon, Michael O'Neill and Seán McGarraghy