MHRD Scheme on Global Initiative on Academic Network (GIAN)
Title of the Course: **Autonomic Networks**
(In the area of *Mathematical & Computer Sciences*)

Teaching Faculty

PROF. SÉBASTIEN TIXEUIL(ST)

DR. PARTHA SARATHI MANDAL (PSM)

Tentative Lecture Schedule

Course details (1 credit course, total 10 lectures)

Oct 30, 2017 Monday

Lecture 1: (ST) 2:30PM to 3:30 PM
Introduction to sensor networks 1
Sensor Node Architecture, Localization, Routing, Medium Access Control

Lecture 2: (ST) 3:45PM to 4:45 PM
Introduction to sensor networks 2
Sensor Node Architecture, Localization, Routing, Medium Access Control

Tutorial 1: (ST) 1 hrs: Problem solving session with examples on localization, routing

Oct 31, 2017 Tuesday

Lecture 3: (ST) 2:30PM to 3:30 PM
Self-stabilization and Sensor Networks 1
Self-stabilization, Models, Cached Sensornet, Unison with Collisions, TDMA for Sen sors, Density, Self-stabilizing Clustering

Lecture 4: (ST) 3:45PM to 4:45 PM
Self-stabilization and Sensor Networks 2
Self-stabilization, Models, Cached Sensornet, Unison with Collisions, TDMA for Sen sors, Density, Self-stabilizing Clustering

Tutorial 2: (ST) 1 hrs: Problem solving session with examples on Self-stabilization and Sensor Networks

Nov 01, 2017 Wednesday

Lecture 5: (ST) 2:30PM to 3:30 PM

Introduction to Robust Algorithms 1

The Byzantine Generals Problem, Topology Discovery, Wireless and sparse networks

Lecture 6: (ST) 3:45PM to 4:45 PM

Introduction to Robust Algorithms 2

The Byzantine Generals Problem, Topology Discovery, Wireless and sparse networks

Tutorial 3: (ST) 1 hrs: Problem solving session with examples on Robust Algorithms

Nov 02, 2017 Thursday

Lecture 7: (ST) 2:30PM to 3:30 PM

Distributed Coordination in Swarms of Autonomous Mobile Robots

Motivation and Models

Lecture 8: (ST) 3:45PM to 4:45 PM

Core problems in in Swarms of Robots

Gathering, Scattering, Pattern formation

Tutorial 4: (ST) 1 hrs: Problem solving session with examples on Distributed Coordination of Autonomous Mobile Robots

Nov 03, 2017 Friday

Lecture 9: (PSM) 2:30PM to 3:30 PM

Introduction to the Gathering Problem of Swarms of Robots,

Self-stabilizing deterministic gathering, Impossibility of gathering

Lecture 10: (PSM) 3:45PM to 4:45 PM

Ring Exploration by Semi-Synchronous Oblivious Robots

Impossibility of deterministic exploration, Lower bound, Optimality

Tutorial 5: (PSM) 2 hrs: Problem solving session with examples on Gathering Problem and Impossibility of gathering

Date of Examination: Nov 04, 2017 Saturday