

## **DST 4020: MOBILE COMPUTING**

Prerequisite: APT2050 Computer Networks and Telecommunications

APT 3060: Mobile Programming

3 Credit Units

### **Course Rationale**

Mobile have become a modern tool for communication and doing business. Students should be equipped with advanced mobile skills and knowledge in order for them to continue being innovative in the field of mobile technology.

### **Course Description**

This course is offered for those who are interested in understanding and building systems support mechanisms for mobile computing systems including client-server web/database/file systems, and mobile ad hoc and sensor networks for achieving the goal of anytime, anywhere computing in wireless mobile environments. The technologies involved to realize such a system will be covered and the fundamental concepts of mobile computing are introduced. These include mobility and service management, data management, routing in mobile ad hoc and sensor networks, and security issues for mobile systems. While mobile computing covers many topics, in this course our main focus will be on mobility, data and service management, and security issues in mobile computing environments.

### **Course Contents**

Performance Analysis and Enhancement for IEEE 802.11 MAC protocol. A Novel Analytical Modeling for Optimal Channel Partitioning in the Next Generation Integrated Wireless and Mobile Networks .Energy Efficient Routing Protocols for Wireless Sensor Networks: . Research Topics in Bluetooth. Multicast in Wireless Environment .Strategies for Enhancing Routing Security in Wireless Networks .Generic and Scalable Security Schemes for Ad Hoc Networks .Wireless LANs and PANs. Recent Advances in Mobile Networks:

### **Teaching Methodology**

The primary teaching methods will be lectures and demonstrations. The student will attend lectures and demonstrations participate in discussion on assigned readings, complete assigned projects, and complete required tests and examinations

### **Instructional Materials/Equipment**

Course text, Handouts, White board, Presentation slides, Journals

### **Methods of evaluation**

Class assignments, take-home assignments, tests, small projects to demonstrate use of software tools

Laboratory Work	20%
Project	20%
Assignments	10%
Mid-semester	20%
Final semester exams	30%
<b>Total</b>	<b><u>100%</u></b>

### **Course Text**

Principles of Mobile Computing and Communications, by Mazliza Othman, Auerbach Publications 2007.

Formal methods for mobile computing by Marco Bernardo, Alessandro Bogliolo – 2005

Mobile multimedia: communication engineering perspective by Ismail Khalil Ibrahim, David Taniar – 2006

Mobile computing principles: designing and developing mobile by Reza B'Far – 2005F. Adelstein, S.K.S. Gupta, G.G. Richard III and L. Schwiebert,

Fundamentals of Mobile and Pervasive Computing, McGraw Hill, 2005, ISBN: 0-07-141237-9.