CS 6603 – Advanced Topics in Wireless Networks

Spring 2015

Instructor:
Dr. Abusayeed Saifullah
Assistant Professor, Department of Computer Science
Email: saifullaha@mst.edu Phone: 573 341 7717

Class Meeting:
Tuesdays and Thursdays 02:00pm - 03:15pm
Location: CS 202

Office Hour:
Tuesdays 3:30pm – 4:30pm and by appointment
335 Computer Science Building

Course Description:

This is an advanced wireless networking class for graduate students with sufficient background in computer networks. The objective of the course is to make students familiar with the fundamental and low-level concepts of wireless communication as well as with the recent advances in wireless networking. Students will be required to complete a semester-long research project related to the theme of this course. Any topic in the wireless networking field can be chosen upon approval from the instructor. Students may choose to work in a group of at most 2 members or individually. At the end of the semester, each group/individual will present their work in class and turn in a full-length conference or journal-style paper describing the project.

Topics to be covered in this course will include:

1. Wireless fundamentals: FFT and signal processing, modulation techniques, demodulation, interferences, capture effects, introduction to existing wireless technologies and applications
2. Infrastructure and ad hoc networks
3. Routing in ad hoc networks
4. Wireless sensor networks: MAC protocols, link scheduling, energy optimization, topology control, structural health monitoring, wireless health, application allocation, real-time wireless, sensor-actuator network, and wireless control
5. Industrial wireless network: WirelessHART, ISA100
6. Whitespace networking
Prerequisite:
A "C" or better grade in CS 4600/5600 or equivalent or the permission of the instructor is the prerequisite for this course. The instructor also assumes that the students have sufficient background in algorithms and data structures.

Coursework and Weight:
- Class attendance and discussion: 5%
- Presentation: 25%
- Survey: 25%
- Research project: 45%

Score Distribution (on a Scale of 100) for Letter Grades:
- A: 85-100
- B: 75-84
- C: 55-74
- F: 0-54

Academic Dishonesty: http://registrar.mst.edu/academicregs/index.html
Cheating and plagiarism in the course works (homework, exam, project) are strictly prohibited. Page 30 of the Student Academic Regulations handbook describes the student standard of conduct relative to the System's Collected Rules and Regulations section 200.010, and offers descriptions of academic dishonesty including cheating, plagiarism or sabotage. A description of the process for dealing with issues related to academic dishonesty, is available on-line at http://ugs.mst.edu

Academic Alert System: http://academicalert.mst.edu
The instructor will utilize the online Academic Alert System. The purpose of the Alert System is to improve the overall academic success of students by improving communication among students, instructors and advisors; reducing the time required for students to be informed of their academic status; and informing students of actions necessary by them in order to meet the academic requirements in their courses.

Disability Support Services: http://dss.mst.edu
Any student inquiring about academic accommodations because of a disability should contact Disability Support Services so that appropriate and reasonable accommodative services can be determined and recommended. Disability Support Services is located in 204 Norwood Hall. Their phone number is 341-4211 and their email is dss@mst.edu