ECE 7200 – Advanced Wireless Communication Networks

COURSE OUTLINE – FALL 2014

COURSE DESCRIPTION:
This course deals with wireless communications techniques, and design, analysis, and optimization of wireless networks.

COURSE OBJECTIVE:
The objective of this course is to expose the students to the area of wireless communications and mobile information systems for research and development. The course materials (lectures, presentations, course projects) will consist of topics related to radio engineering, data communications, computer networks, distributed and mobile data applications. As a graduate level course, it will combine extensive reading and in-class discussion of the research literature with in-depth research projects done by the students.

PRE-REQUISITES:
Background on digital communications and telecommunication networks, probability theory and stochastic processes, queueing theory

CONTACT HOURS:
3 hours per week

COURSE CONTENT:
- Wireless Channel Modeling
- Capacity of Wireless Channels and Physical Layer Techniques
- Channel Assignment and Radio Resource Management in Wireless Networks
- Packet Radio Multiple Access
- Admission Control and Handoff in Wireless Networks
- Error control in Wireless Networks
- Transport Layer Protocols for Wireless Networks

HOMEWORK:
There will be a few assignments (2-4) given to the students based on the lecture materials. Each of these assignments will involve programming using MATLAB. Electronic copies of the solutions of the assignments will need to be submitted to the instructor in due time.
TEXTBOOK:

No specific text-book will be used. Most of the reading materials will be taken from the major IEEE Journals. The following books will be used as reference books:


EVALUATION:

Your final course grade is determined by your performance in assignments, term test, and a final examination. The weighting of each of these components is as follows:

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<th>COMPONENT</th>
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<th>VALUE %</th>
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<tr>
<td>Seminars</td>
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<td>Homework/Assignments</td>
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<td>Project</td>
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<td>Midterm Exam</td>
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<td>Final Examination</td>
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INSTRUCTOR INFO:

Name: Ekram Hossain
Office: EITC E1-552
Tel: 204 474-8908
Email: Ekram.Hossain@ad.umanitoba.ca

Office Hours:

VOLUNTARY WITHDRAW:

Wed., 12 November 2014

REQUIREMENTS/REGULATIONS

- **Student Responsibilities**: It is the responsibility of each student to contact the instructor if he/she is uncertain about his/her standing in the course and about his or her potential for receiving a failing grade. Students should also familiarize themselves with Sections 4 and 6 of
the Regulations dealing with incomplete term work, deferred examinations, and attendance and withdrawal.

- **Lectures**: Attendance at lectures is essential for successful completion of this course. Students must satisfy each evaluation component in the course.

**ACADEMIC INTEGRITY:**

Students are expected to conduct themselves in accordance with the highest ethical standards of the Profession of Engineering and evince academic integrity in all their pursuits and activities at the university. As such, in accordance with the General Academic Regulations and Requirements of the University of Manitoba, Section 7.1, students are reminded that plagiarism* or any other form of cheating is subject to serious academic penalty (e.g. suspension or expulsion from the faculty or university) regardless of media

- examinations
- assignments
- laboratory reports
- term exams

A student found guilty of contributing to cheating in examinations or term assignments is also subject to serious academic penalty

*Plagiarism*: to steal and pass off (the ideas or words of another) as one's own; use (another's production) without crediting the source