EE 243: Communications Systems I
Course Syllabus, Fall 2012
Lecture: 111 EECH, MWF, 11:00 a.m. - 11:50 a.m.

**Instructor:** Dr. Y. Rosa Zheng
Dept. of Electrical and Computer Engineering
225 EECH, 341-6632 (o), zhengyr@mst.edu

**TA:** TBA

**Office Hours (tentative):** LEAD sessions on Fridays 10:30 am-12:00pm in 106 EECH except Sep. 21 and Nov 30, 2012. Office visits are by appointment.

**Prerequisites:**
- El Eng 265 or El Eng 217 (Continuous-Time Linear Systems) -- Basic concept in continuous-time signals and linear systems, Fourier transform, impulse response and frequency response of LTI systems. No need for El Eng 215 (Discrete-Time Linear Systems).
- Basic Knowledge on MATLAB -- MATLAB basic operations.

**Course Description:**
The essence of communications systems is to move information from one location to another through a medium (or a channel). Analog and digital communications systems have found wide-spread applications in modern society. These include radio, television, telephone, facsimile, audio, video, remote controllers, computer systems and networks, wireless cellular phone services, Wi-Fi and WiMax (internet services), navigation and localization services (such as GPS), etc., etc. The communications theory addresses the fundamental principles laying in these applications and helps us to design transmitter and receiver that achieve high reliability and fidelity with minimum costs in bandwidth, power, and complexity.

As the first course in the communications series, EE243 covers the basic concepts of communications systems with an emphasis on classic RF (radio Frequency) communications and base-band digital communications. We will study the theory of analog modulation schemes and base-band digital transmission schemes. This will provide solid foundations for more advanced courses such as Communications Systems II (EE343), Communications Circuits (EE357), and Wireless Communications (EE401). Besides theory, we will also learn to simulate communication systems in MATLAB to reinforce the theoretical concepts.

**Textbook and References:**
**Class Home Page:**
General information regarding the course can be found at the instructor's website at [http://web.mst.edu/~zhengyr/](http://web.mst.edu/~zhengyr/) under the Teaching tab. Course material will be posted on Blackboard at [https://blackboard.mst.edu](https://blackboard.mst.edu) regularly. You are expected to monitor Blackboard frequently for announcements or other course material. If you are new to Blackboard 9, tutorials can be found at [http://edtech.mst.edu/support/blackboard9/index.html](http://edtech.mst.edu/support/blackboard9/index.html).

**Lectures, Homework and Exams:**
- You are expected to attend every lecture. You are solely responsible for anything you miss, including announcements, handouts, assignments, quizzes, Matlab exercises, and exams, in addition to the course topics discussed in the class. Class participation is strongly encouraged because we will frequently work on MATLAB simulation in class.
- Quizzes or Matlab exercises will be given in class throughout the semester. Besides constituting a substantial part of your grade, the quizzes and exercises will help me to get feedback about your learning and the effectiveness of my teaching. They will also help you prepare for the exams. A total of 14 quizzes or matlab exercises will be administered and the best 13 of the 14 will be chosen for your final grade. They weigh 4% each towards your final grade.
- Matlab exercises and the corresponding reports are to be done in groups. Each group consists of two students maximum and needs to submit only one copy for each exercise. To receive credit for a lab exercise, both members of the group must attend the classes allocated to the lab exercise. Peer-rating forms will also be used to account for individual effort.
- Regular homework will be assigned but will not be graded. However doing the homework will help you with in-class quizzes and exams. It is also essential for understanding the course content. Doubts regarding the homework will be entertained during LEAD sessions.
- There will be three exams and one comprehensive final exam. The best 3 of the 4 will be selected towards your final grade. Each exam is worth 15%.
- All exams are closed-book but you can bring a letter sized double-sided fact sheet. Exams are to be done by each individual student. Makeup exams will not be given unless you have a very unusual excuse with the instructor's permission in advance, or a documented medical/family emergency.
- If you disagree with the grading of an exam or quiz or assignment, you must contact the instructor within one week from the day the exam/quiz/assignment is handed back to you. After that time, no request for re-grading will be accepted. A re-grade can result in an increase, a decrease, or no change in the grade.

**Grading:**
The semester grade will be assigned based upon a weighted average of class participation, quizzes, assignments and exams. Weights will be assigned as follows:
- Class/LEAD participation: 3 %
- Quiz/Matlab exercises: 4% each (Best 13 out of 14)
- Exam I, II, III and Final Exam: 15% each (Best 3 out of 4)
The final letter grades will be curved based on all students’ performances in the class. In general, the grades will be given roughly based on these scale: 90-100% => A; 80-89% => B; 70-79% => C; 60-69% => D, and below 60% => F.

**Important dates:**
Please inform the instructor any religious or traditional holidays that you may wish to observe. We will try to avoid scheduling examinations on those days. Tentative schedule of the course is listed in the following table. Other important dates can be found at Registrar's website [http://registrar.mst.edu/](http://registrar.mst.edu/).

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>Sep 3rd, Monday</td>
<td>No class, Labor Day Holiday</td>
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<tr>
<td>Sep 17th, Monday</td>
<td>In-class Exam 1</td>
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<tr>
<td>Oct 17th, Wednesday</td>
<td>In-class Exam 2</td>
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<tr>
<td>Nov 9th, Friday</td>
<td>Last day for dropping a course</td>
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<tr>
<td>Nov 18th- Nov 24th</td>
<td>Thanksgiving break (No class)</td>
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<tr>
<td>Nov 30th, Friday</td>
<td>In-class exam 3</td>
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<tr>
<td>Dec. 10th, Monday</td>
<td>Final Exam. 10:30am-12:30pm</td>
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**Feedback:**
Your feedback is critical to my success as an instructor and to the success of the course. In addition to the semester-end teaching evaluation required by the department, I'll frequently solicit your feedback. Your comments are appreciated and are welcome throughout the semester. Feedback and communication with the instructor can be made via in-class questions, office hours, emails, and anonymous letters dropped in my mailbox or in the department office. Your emails will be read every day during the week. But due to the large volume of emails I receive, I may reply only when needed. Common questions will be answered in class.

**Class Behavior and Academic Honesty:**
When in class, please turn off all cell phones, pagers, and other devices that ring, buzz, or otherwise might disrupt the class.

Academic honesty is fundamental to the activities and principles of a university. All members of the academic community must be confident that each person's work has been responsibly and honorably acquired, developed, and presented. Any effort to gain an advantage not given to all students is dishonest whether or not the effort is successful. The academic community regards academic dishonesty as an extremely serious matter, with serious consequences that range from probation to expulsion. When in doubt about plagiarism, paraphrasing, quoting, or collaboration, consult the course instructor.

Discussion on assignments and lab reports between groups is permitted, but each group should solve problems and write answers separately. If solutions/codes from two groups
are found to be effectively identical, all members in both groups will receive zero as the grade.

Other examples of cheating are
- Submitting a report for which the experiment or the write-up is not done by you.
- Sharing results or notes during exams.
- Stealing other student's results during exams.
- Bring notes, in hard copy or electronic form, to an exam where they are not allowed.
- Continuing work on your exam after we have called for papers.
- Requesting a re-grade on an exam or an assignment that has been altered after grading.
- Copying paragraphs without putting them in quotation marks or citing the reference.

**ADA Statement:**
If you need assistance or accommodations due to a disability, please notify the instructor immediately. Reasonable effort will be made to accommodate your special needs. You will need to request that the Disability Services staff send a letter to the instructor verifying your disability and specifying the accommodation you will need. Disability Support Services is located in 204 Norwood Hall with telephone number 341-4211 and e-mail address dss@mst.edu.

Any information provided by the instructor on later dates, in written or oral form, will supersede this document.