ECE 4250 – Digital Communications

Course Objectives
To provide an introduction to fundamental concepts in digital communications.

Course Content
The following topics will be covered:
- Introduction to Digital Communications
- Analog to Digital Conversion and PCM
- Review of Probability Theory and Random Processes
- Optimal Detection of Binary Signals over AWGN Channel
- Baseband Transmission
- Digital Modulation.

Textbook
- Notes provided by Instructor

Requirements/Regulations
- Attendance at lectures and laboratories is essential for successful completion of this course. Students must satisfy each evaluation component in the course to receive a final grade.
- It is the responsibility of each student to contact the instructor in a timely manner if he or she is uncertain about his or her standing in the course and about his or her potential for receiving a failing grade. Students should also familiarize themselves with the University’s General Academic Regulations, as well as Section 3 of the Faculty of Engineering Academic Regulations dealing with incomplete term work, deferred examinations, attendance and withdrawal.
- No programmable devices or systems (such as calculators, PDAs, iPods, iPads, cell phones, wireless communication or data storage devices) are allowed in examinations unless approved by the course instructor.

Important Dates
- **Term Test**
  March 3rd, 2015, 6:00pm–8:00pm
- **Voluntary Withdrawal Deadline**
  March 19th, 2015
- **Mid-term Break**
  February 16–20, 2015
  No classes or examinations
- **Good Friday**
  April 3rd, 2015
  No classes or examinations
Learning Outcomes

1. Describe the role of important elements of a modern communication system.
2. Analyze and design analog/digital conversion systems.
3. Analyze and design optimum receivers for digital data transmission.
4. Analyze digital modulation techniques by using signal processing tools.
5. Identify (and justify the suitability of) a digital modulation technique for a given application scenario.

Expected Competency Levels

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<th>Outcome</th>
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Evaluation

The final course grade is determined by the student’s performance in the following:

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<tr>
<th>Component</th>
<th>Value (%)</th>
<th>Method of Feedback</th>
<th>Learning Outcomes Evaluated</th>
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<td>Assignments</td>
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* Method of Feedback: F - Formative (written comments and/or oral discussion), S - summative (numerical grade)

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 on Academic Integrity, students are reminded that plagiarism or any other form of cheating in examinations, term tests, assignments, projects, or laboratory reports is subject to serious academic penalty (e.g. suspension or expulsion from the faculty or university). A student found guilty of contributing to cheating by another student is also subject to serious academic penalty.