Class Information

This course is intended to provide the background necessary for an advanced study of digital communication system design and analysis. By the end of the semester, students of EE650 should be able to understand the following:

- Detection theory
- Power spectral densities of signals
- Carrier modulation and demodulation techniques for: ASK, PSK, MPSK, FSK, MFSK, QAM, MQAM
- Fading, equalization, and diversity in wireless communication
- OFDM, PAR
- Spread spectrum (direct-sequence and frequency-hopping) communication (time permitting)
- Multiplexing and multiple access — OFDM, TDMA, FDMA and Random Access

Lecture Schedule:
TTh 7:15pm–8:30pm in EE423B

Instructor:
Dr. Gregory Dubney
Email: dubney@gmail.com

Office Hours:
T: 8:30pm–9:00pm
Th: 8:30pm–9:00pm
For other times, send email for appointment.

Prerequisite:
EE558 - Digital Communications
EE602 - Probability, Random Variables, and Random Processes

Course Text Books:
*Digital Communications*, 2nd edition, Bernard Sklar, Prentice Hall, New Jersey 2001
Homework:
Homework will be assigned but not collected. Solutions will be posted time permitting.

Quizzes:
Unannounced quizzes will be given to ensure students are keeping up with lecture material and HW.

Project:
There will one major project due at the end of the semester that will count towards 15% of your grade. You will be required to submit a proposal for your project that must be approved by the instructor. Your product must include the following:

- Well defined topic/problem that you want to investigate
- Theoretical analysis that supports the conclusions drawn in your project
- Matlab simulation that supports/verifies your theoretical analysis
- Source code must be submitted to instructor and must run and be bug free
- At least 3 cited IEEE papers related to your topic
- Complete typed report that gives detailed analysis of the problem studied, theoretical analysis, simulation results, conclusion, and future work
- 10 minute power point presentation that you will give to the class
  - Please practice your presentation
  - Remember the audience are not experts. Please give the big picture of the problem and enough supporting evidence to reach a conclusion
  - DO NOT fill the presentation with math equations. Your paper is for that.
  - Speak clearly, slowly, and with confidence
- Complete sentence structure, grammar, correctly labeled plots, layout, overall appearance, and readability will count heavily towards the overall grade on the project. That is, if you turn in correct source code, with correct plots, but with a poorly written report, then you will get a poor grade.

Exams:
There will be one in-class 2 hour Midterm Exam and a 2 hour Final Exam. The exams will be closed book. A formula sheet will be provided. A basic scientific calculator will be allowed on the Midterm and Final Exams. That is, your calculating device cannot have the capability to communicate with other devices or the internet. Absolutely no cell phones allowed during the exams. More information regarding exams will be provided at a later date. In-class exam date are given below. Please do not miss any exams. There will be absolutely no Make Up exams given. Make up exams will only be given in the case of extreme circumstances such as very serious illness, death in family, unforeseeable accident, etc. You will need to provide me documentation in order to have a make up exam.
Exam Dates:
Midterm: TBD - Before Spring Break 2014
Final: The final exam will be on May 12 by 1900-2100 PM in the same classroom

In-class Midterm will cover material taught in class until the exam. The final will be comprehensive.

Grades:
The final grade will be calculated as follows:

- Homework: 0%
- Quizzes: 15%
- Project: 15%
- Midterm: 30%
- Final: 40%
- Total: 100%

The final grade will be curved with the aim that the average grade is a B. The instructor will set the curve to distinguish between A, A-, B+, B, B-, C+, C, C-, D+, D, D-, and F.

Drop Date:
The last day to drop this course with a mark of W is February 2, 2016

Cheating:
SDSU takes cheating VERY SERIOUSLY. Any action that might unfairly improve a student’s performance on quizzes or exams will not be tolerated and will result in a 0 grade for that homework or exam. Furthermore, any incidence of dishonesty will be reported to concerned university authorities immediately. Then on, the matter will be out of the instructor’s hands and the university will take due action.

Good luck!