Today: (1) Technical Presentations (2) Prep for Exam 3 (3) Project Help

1 Technical Presentation

I’ve posted a paper by Jean-Luc Duomont, “The Three Laws of Professional Communication,” IEEE Transactions on Professional Communication, vol. 45, no. 4, Dec. 2002. He suggests that the following four laws are the basic requirements for a good presentation:

- First Law: Adapt to your audience.
- Second Law: Maximize the signal to noise ratio.
- Third Law: Use effective redundancy.
- Zeroth Law: Have a purpose.

I recommend that you read this paper to help you prepare your slides. In addition, I have a slide presentation from Megan O’Byrne, from the CLEAR center at the University of Utah, titled “Powerpoint on Powerpoint”.

2 Exam 3 Prep

Exam 3 covers lectures 14-19, and homeworks 7 and 8. Exam 3 will involve about 2/3 “non-numerical” problems, i.e., short answer and multiple choice. The other 1/3 will be calculation problems. My best advice is to read all of the lecture notes again, and to read all of the required readings, including the Goldsmith and Haykin handout, and the coding video. While reading them, take detailed notes (with paper and pencil!), which you may include in your portfolio.

Some examples: For a given OFDM system, calculate the data rate (in bps) that can be achieved. What is a linear block code? What is a systematic code? Calculate from a given data bit string what coded bit string would be sent using a given linear block code. Calculate from a given received coded bit string what data bit string was actually sent. What are three benefits of FH-SS? When would an eavesdropper be able to decode data sent on an FH-SS communication link? What are three benefits of DS-SS? Why is DS-SS resistant to jamming? Why (or how) are Walsh-Hadamard functions
used in IS-95? Draw an approximate autocorrelation function of a PN code signal. Given a particular LFSR, and a particular starting state, determine the first X bits of the output of the PN code. When is a channel-partioning MAC inefficient? Why is a random access MAC protocol inefficient? What is the difference between slotted and unslotted ALOHA? What is carrier sense multiple access (CSMA)? Why do collisions occur in CSMA? How does a rake receiver determine at what time delays multipath exist? Given a particular interleaver structure, and the following input bits, what is the output bit stream? What are the advantages of space diversity compared to frequency diversity? (What are the disadvantages?)