
Prerequisites: Basic linear algebra.

Office Hours: To be announced.

Course Contents: The course will introduce the concept and techniques for error detection and correction in communications systems. Following codes and their decoding will be covered during the semester:

1. Linear Block Codes (Hamming Codes)
2. Cyclic Codes (Reed-Solomon and BCH codes)
3. Convolutional and TCM codes
4. Turbo codes
5. Space-time codes

Homework Assignments: The assignments will consist of both problems from the book and matlab-based questions. Guidelines to aid evaluation of matlab-based problems will be provided in each homework.

Late submissions are not encouraged. The penalty for late submissions is 20% per day (upto a maximum of three days). After three days, no submissions will be accepted. Only under special circumstances, late submissions will be accepted without any penalty or beyond three days of delay.

Final Project:
- Final project ideas will be discussed in the middle of the semester. Almost all final projects will involve matlab or DSP-based programming, and will be mainly exploratory in nature. Students with prior research experience can choose to undertake a research problem after discussing it with the instructor.
- The students are encouraged to do the final projects in groups of 2 to 4. The size of the project should be commensurate with the size of the group.
- The projects will be graded by the instructor and your classmates. The grade for the final project will be based on peer-reviewed class presentations (all students should be present for all the presentations, theirs and others). The final scoring system will be disclosed before the final project evaluations.

Grading: The students will be graded based on both the homework assignments (50%) and the final project (50%).