Digital Communications
An Open Communications Design Project

Introduction:

In the Design Project project you will first decide on a digital communications project that of interest to you. This design will be:

- A full communication system, from digital information data in to digital information data out.
- You will simulate your design in MatLab (or Octave) including:
  - All subsystems and the connecting transmission system including one or more repeaters due to transmission line losses.
  - The transmission subsystem will introduce adjustable amounts of both Gaussian white noise and randomized ISI
  - Your data correction scheme should provide better than one in 10^{10} bit error rate with reasonable quality transmission line performance
  - You may need to read chapter 5 on link analysis before setting up your simulation

Deliverables (Team uploads to Blackboard):

1. **Project Definition**: Identify your team (~3 members) and define your communication system choices. **Email me the team membership and the nature of your communication system so that I can establish the teams in Blackboard.** Upload this information after the teams are defined.
2. **Simulation Files:** so that your simulation can be run from the uploaded files.
3. **Full Project Report**: including plots of your simulation results as well as documenting your design objectives, chosen solution, and the performance of your system (BER vs S/N). Include a section describing problems encountered and how they were resolved.
4. **PowerPoint-based presentation**: covering your system and results. All team members should take part in the presentation.

The presentations will take place in-class before and during Finals week.

Make certain that all material used from references is cited, any plagiarism (it will be detected) will result in significant project grade penalties.