ECEN 4503
Random Signals and Noise
Spring 2002
Computer Project

Random Number Generators

This computer project is to stmulate the use of computer assisted tool such as Matlab in the analysis and design of random signals and noise. The goal is to design your own random number generator through literature search, qualitative analysis, computer design, and quality assessment. The procedures involve the following steps.

- search literature (from various on-line resources available in library, such as IEL, ACM digital library, or UMI dissertation index) to identify a (collection of) paper(s) with the methods or technique appropriate for the design of random number generator;
- register your paper and technique for approval during TA's office hours on first come first take basis; no same paper or technique can be used by more than two students;
- realize your chosen technique in Matlab or C and generate a sequence of 4,096 data points of random numbers between –1 and +1, save them as a data file in ASCII format;
- document a 5-10 page report to
    - introduce the subject, random number generator
    - overview the technique chosen
    - discuss the problem formulation
    - *propose novel advancement or improvement*
    - provide flow chart and simulation results
    - list the references
- send the source code and resulting data file to TA by email (xiaos@okstate.edu) for quality assessment;
- send the document or report in hard copy to instructor by May 3rd, 2002.

Evaluation: The resulting random numbers will be evaluated by using those criteria presented in the Project Lecture, and the final grade of your project will depend on the results of evaluation and your documentation. For your convenience, the quality assessment m-files will be made available in the class homepage for your convenience.