ECE 54400 – Digital Communications

Type of Course
Elective for the CmpE and EE programs

Catalog Description
Introduction to digital communication systems and spread spectrum communications. Topics include analog message digitization, signal space representation of digital signals, binary and M-ary signaling methods, detection of binary and M-ary signals, comparison of digital communication systems in terms of signal energy and signal bandwidth requirements. The principal types of spread spectrum systems are analyzed and compared. Application of spread spectrum to multiple access systems and to secure communication systems is discussed.

Credits
Cr. 3.

Dual Level, Undergraduate-Graduate

Contact Hours
3

Prerequisite Courses
ECE 42800 and senior or graduate standing in either an engineering or science degree program.

Textbook
Introduction to Digital Communications, by Michael B. Pursley. Publisher: Prentice Hall, 2005. (ISBN-10: 0201184931, ISBN-13: 9780201184938)

Lecture Topics
1. Review of Probability and Random Variables
2. Linear Systems with Random Inputs
3. Frequency Domain Analysis
4. Baseband Transmission of Binary Data
5. Coherent Communications
6. Noncoherent Communications
7. Intersymbol Interference
8. Spread Spectrum Systems

Computer Usage
Medium

Laboratory Experience

None

Design Experience

None

Coordinator

Todor Cooklev

Date

03/02/2018