EE379A Lectures – Winter 2024

Tu-Th 3:00 - 4:20 pm; Location Gates B1

Lecture #	Date	Topic	Reading	Hmwrk (out/in)
Data-Transmission, Channels & Fundamentals				
1	1/9	Intro: Discrete Message Encoding/Decoding	1.1	1/-
2	1/11	White Gaussian Noise (AWGN) Channels	1.2	-/-
3	1/16	Modulation Types (PAM/QAM)	1.3	2/1
4	1/18	Complex and other Channels	1.4	-/-
5	1/23	MIMO and Statistical Channels	1.5, 1.6	3/2
Codes and Decoding				
6	1/25	Coding Concepts & Dimensionality	2.1-2	-/-
7	1/30	Binary Codes	8.1,8.2	4/3
8	2/1	Viterbi-Sequence & MAP-Bit Decoding	7.1-3	-/-
9	2/6	Concatenated and Turbo Codes	8.3	-/4
--	2/8	**Midterm Exam** (open bk)		-/-
10	2/13	Constraints and LDPC Codes	7.4-6	5/-
11	2/15	Outer Hard-Code Concatenation	8.4,8.6	-/-
12	2/20	Guessing Decoders & Product Codes	7.6, 8.3.5	6/5
Intersymbol Interference and Equalization				
13	2/22	Intersymbol Interference, MMSE, & SNR	3.1-3,3	-/-
14	2/27	Linear Equalizers	3.4-3.5	7/6 (2/23)
15	2/29	Decision Feedback Equalizers	3.6	-/-
16	3/5	FIR Equalizer Design & Software	3.7	8/7 (3/6)
17	3/7	Precoders and Diversity	3.8-9	-/-
18	3/12	Transmit Optimization and Waterfilling	3.11-12	-/8
Synchronization and Training/Adaption				
19	3/14	Phase Locking: Timing/Carrier, Adaptive EQ	6.1-5, 3.14	-/8ext

Grading: midterm 30%, final exam 40%, homework 30%. PS8 extension is optional for students. Final is take home, ~24 hours, due Friday 3/15 at 5pm, distributed end of Lecture 19 (questions thereupon in office hours 3/14 after class.

This class will be recorded by SCPD and those recordings will be available for later use.