Textbooks:


Reference:


Outline:

1. Introduction
2. Source Coding and Data Compression
3. Baseband Communications
4. Equalization
5. Digital Modulations
6. Trellis Coding
7. Synchronizations
8. Multichannel and Multicarrier Systems
9. Spread Spectrum and CDMA Systems
10. Multiuser Detection Theory

Grading:

1. HW 10%
2. Test 1 25% 10/19
3. Test 2 25% 11/16
4. Final 40%

Weekly Schedule:

Week 1: Aug. 31 Lloyd-Max Algorithm and Vector Quantization
Week 2: Sept. 7 No Class (Labor Day)
Week 3: Sept. 14 Rate-Distortion Theory and LZ 77, 78 Algorithms
Week 4: Sept. 21 Nyquist Criterions, and Partial Response
Week 5: Sept. 28 PAM, and Optimal Filter Designs
Week 6: Oct 5 Forney MLSE and Viterbi Algorithm
Week 7: Oct. 13 (Tuesday) MMSE and Adaptive Equalizations
Week 8: Oct. 19 Test 1
Week 9: Oct. 26 Digital Modulations: QAM, MSK, GSK, and CPM
Week 10: Nov. 2 Trellis-Coded Modulations
Week 11: Nov. 9 Synchronizations
Week 12: Nov. 16 Test 2
Week 13: Nov. 23 OFDM and Multicarrier Systems
Week 14: Nov. 30 Spread Spectrum and CDMA Systems
Week 15: Dec. 7 Multiuser Detection Theory
Week 16: Final Examination