

ECES-306 Modulation and Coding Post-Midterm Review

Sampling Theorem

- Nyquist Rate
- Sampled Signal
 - Time Domain
 - Frequency Domain
- Ideal Interpolation
- Aliasing / Anti-aliasing filter

Pulse Modulation

- Analog
 - Pulse Amplitude Modulation (PAM)
 - Pulse Width Modulation (PWM)
 - Pulse Position Modulation (PPM)
- Digital
 - Quantization – Natural Binary Code
 - Quantization Error / Noise
 - Pulse Code Modulation (PCM)
 - Differential Pulse Code Modulation (DPCM)
 - Delta Modulation (DM)
 - Transmission BW / SNR - Theoretical Minimum BW

Digital Data Transmission

- Baseband Digital
 - Line Codes
 - On off
 - Polar
 - Bipolar
 - Power spectral density – pulse type
 - Actual bandwidth – for a given data rate and pulse type
 - Error probability
 - Power
 - Pulse shaping
 - Nyquist Criterion pulse – Zero ISI
 - M-ary communication
 - Multi-amplitude signaling
 - Error probability
- Digital Carrier Systems
 - Amplitude Shift Keying (ASK) or On-off Keying (OOK)
 - Phase Shift Keying (PSK)
 - Frequency Shift Keying (FSK)
 - M-ary Quadrature Amplitude Modulation (M-QAM) or Quadrature Phase Shift Keying (QPSK)
 - Signal Constellation representation
 - Decision regions