Coding Theory and Digital Data Transmission
Syllabus

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1. The frequency domain

   (a) Phasors
   (b) Fourier series
   (c) Fourier transforms
   (d) Covolution theorem
   (e) Dirac delta functions
   (f) Rayleigh's energy theorem
   (g) Gibb's phenomena

2. Communication systems

   (a) Linear time invariant (LTI) systems
   (b) Transmission of signal shrough LTI Systems
   (c) Impulse response and filter design
   (d) Sampling and aliasing
   (e) Baseband (line) encoding
   (f) The Nyquist criterion

3. Bandpass Modulation

   (a) AM modulation, broadcast AM, DSB, SSB
   (b) Frequency shift keying
   (c) Phase shift keying
   (d) PAM and QAM modulation
   (e) Signal constellations
   (f) Signal detection and system performance in the presence of noise.

4. Information Theory

   (a) Information measures: entropy.
   (b) Channel capacity
   (c) Huffman encoding
   (d) Shannon's theorem