Analog and Digital Communications

Course Code: CT214

Students: B. Tech. 4th Semester

Structure: 3-0-3-4.5

Pre-Requisite: Signals and Systems (CT203)

Time Table:

Syllabus

Review of signals and spectra, Time and frequency relations, Response of LTI systems, Transfer functions, Frequency response, Band-limited signals Signal distortion in transmission, Filters, Hilbert transforms, Correlation and spectral density functions.

Information Theory: Review of information measure and Shannon’s Channel capacity theorem

Linear CW modulation: Band pass signals and systems, AM, DSB, signals and spectra, Product modulators, Square law modulators, Switched modulators, Envelope detection, SSB, VSB signals and spectra, generation and synchronous detection.

Angle modulation: Phase and frequency modulation, Narrowband PM and FM, single Tone and multitone modulations, Transmission bandwidth, Generation and detection of FM and PM signals, De-emphasis and pre-emphasis filtering.

Pulse modulation: Review of sampling theorem, Ideal sampling, Practical sampling Aliasing and reconstruction, PAM, PWM, PPM.

Multiplexing systems: Frequency division multiplexing, Quadrature carrier multiplexing, Time division multiplexing.

Pulse code modulation, generation and reconstruction quantization noise, Companding, Delta modulation, DPCM,

Digital modulation schemes: ASK, PSK, FSK, MSK, QAM

References:


**Evaluation:**

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**Office Hours:** Monday 4:30 to 5:30 pm