

ICE3261: Communication Engineering
75 Marks [70% Exam, 20% Quizzes/Class Tests, 10% Attendance]
3 Credits, 33 Contact hours, Exam. Time: 4 hours

Fundamentals: Communication Engineering Fundamentals, Waveforms Spectra, Periodic waveforms and its properties, Fourier series, Noise and its different types.

Amplitude Modulation: Amplitude modulation, Amplitude modulation index, Frequency spectrum for sinusoidal AM, AM broadcast Transmitter.

Frequency Modulation: Frequency Modulation, Sinusoidal FM, Frequency spectrum for Sinusoidal FM, FM transmitter. FM receiver, Phase Modulation.

Pulse modulation, Pulse Codes Modulation (PCM), Quantization, Compression, PCM Receiver, Differential PCM, Delta Modulation, Sigma-Delta A/D conversion, Pulse Frequency Modulation (PFM), Pulse Time Modulation (PTM), Pulse Position Modulation (PPM).

Digital Communication: Digital Communication, Basic Digital Communication System, Synchronization, Asynchronous Transmission, Probability of Bit Error in Base band Transmission, Matched Filter, Eye Diagrams, Digital Carrier Systems, Amplitude Shift keying, Frequency Shift Keying, Phase Shift Keying, Carrier Recovery Circuits, Differential Phase Shift Keying, Error Control Coding, Block Control, Repetition Encoding, Parity Encoding, Convolution Encoding.

Propagation: Radio Wave Propagation, Mode of Propagation, Microwave Systems, Tropospheric Propagation, VHF/UHF Radio Systems.

Satellite Communication: Satellite Communication, Kepler's First and Second Law, Orbits, Geostationary Orbits, Power System.

Fiber Optic Communication: Fiber Optic Communication, Propagation within a Fiber, Modes of Propagation, Losses in Fibers, Light sources for Fiber optics, Photo detectors.

Books Recommended:

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| 1. | Behrouz A. Forouzan | : | Data Communications and Networking, Tata McGraw-Hill Edition |
| 2. | William Stallings | : | Data and Computer Communications, Prentice Hall International, Inc. |
| 3. | John M. Senior | : | Optical Fiber Communications , Prentice-Hall of India Pvt Ltd |
| 4. | F. Halsall | : | Data Communication, Computer Network and open systems, Addison Wesley |
| 5. | Andrew S. Tanenbaum | : | Computer Networks, Prentice Hall of India Pvt. Ltd |