

# **AMET-13: DIGITAL COMMUNICATION**

## **1. ELECTRONIC COMMUNICATION SYSTEM**

Introduction, Contaminations, The Audio Spectrum, Signal Power Units, Volume Unit , Signal-To-Noise Ratio, Modulation, Fundamental Limitations In A Communication System, Number Systems

## **2. AMPLITUDE MODULATION**

Introduction, definition of am, generation of am wave, double-sideband suppressed-carrier modulation, single-sideband modulation (ssb), vestigial sideband modulation (vsb)., demodulation of am.

## **3. EXPONENTIAL MODULATION1 FREQUENCY MODULATION**

Introduction, frequency spectrum of frequency modulation, comparison of fm and am, frequency modulation band widths, narrow band and wide band frequency modulation

(nbfm and wbfm) , phase modulation, generation and detection principle, fm demodulation : am-based method.

## **4. SAMPLING AND ANALOG PULSE MODULATION**

Introduction, Sampling Theory, Sampling Analysis, Types Of Sampling, Practical Sampling: Major Problems, Types Of Analog Pulse Modulation, Pulse Amplitude Modulation, Pulse Position Modulation, Signal-To-Noise Ratios In Pulse Systems

## **5. DIGITAL DATA TRANSMISSION**

Introduction, representation of data signal, parallel and serial data transmission, 20ma loop and line drivers, modems, data signal: signal shaping and signaling speed, partial response (correlative) techniques, noise and error analysis, repeaters, digital-modulation systems, amplitude-shift keying (ask), frequency shift keying (fsk), four-phase or quaternary psk, interface standards

## **6. DIGITAL MODULATION : DM AND PCM**

Introduction, delta modulation, pulse. Code modulation., pcm bandwidth, pcm reception and noise, quantization noise analysis, aperture time, the  $S/N$  ratio and channel capacity of pcm, comparison of pcm with other systems, pulse rate, codecs, 24-channel pcm, the pcm channel bank, multiplex hierarchy, measurements of quantization noise, differential pcm