<u>DIGITAL COMMUNICATION</u>

<u>Software used:</u>

- MATLAB

<u>Learning Tutorial</u>

<u>http://www.tutorialspoint.com/matlab/index.htm</u>

EXPERIMENT # 7

ANALYSIS OF DIGITAL MODULATION TECHNIQUES

OBJECTIVE:

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DIGITAL MODULATION:

Modulation is the process of encoding information onto a carrier wave. Digital modulation samples the information at regular time intervals where as each measurement of the analogue signal is called a sample.

Digital modulation schemes include:

- ### PULSE AMPLITUDE MODULATION:

   PAM or ASK both imply the alteration of amplitude of the signal pulses accordingly as desired. In this type of modulation, the amplitude of the pulses is altered. Low amplitude is assigned to the baseband signal while high amplitude is assigned to the carrier signal.
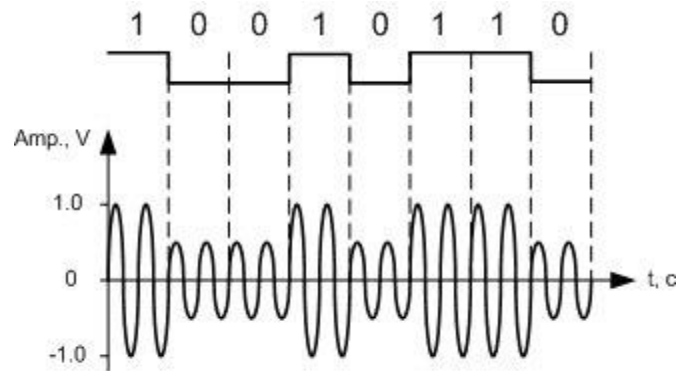

Amplitude shift keying (ASK)

- ### PHASE SHIFT KEYING:

   PSK conveys data by changing, or modulating, the phase of a referencesignal,the carrier wave. In this type, data is transmitted by varying the phase of the modulated signal with respect to data being sent i.e. for either high/low threshold levels (0's and 1's), we have a phase difference.
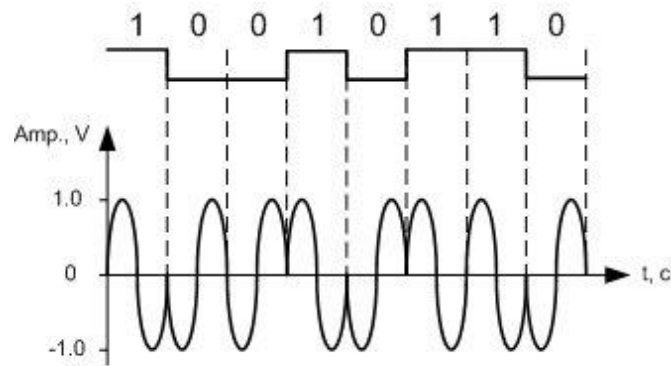
Phase shift keying (PSK)
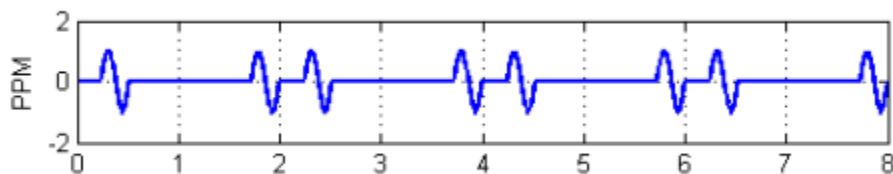
- **FREQUENCY SHIFT KEYING:**

    FSK is a frequency modulation scheme in which digital information is transmitted through discrete frequency changes of a carrier wave usually ten (10) times the frequency of baseband signal. For 1's, we get a very high frequency in the modulated signal while for 0's, we get a very low frequency respectively.
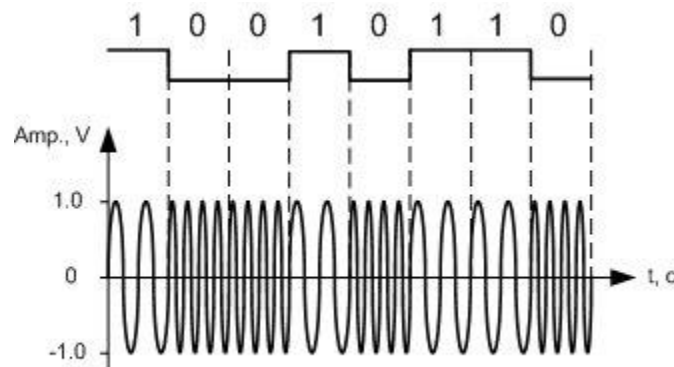
Frequency shift keying (FSK)

- **PULSE POSITION MODULATION:**

    PPM uses time division spaces for the transmission of signals. In this type, pulses are transmitted and the timing of the pulses is altered to encode information. One time slot will be allocated to one specific signal while another time slot will be assigned to some other signal.

SOFTWARE USED:

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Lab Task :

Perform digital modulation techniques using MATLAB, generate its pdf and attach the output.

CONCLUSION:

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Post Lab Questions

a) **Define Digital Modulation.**

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b) **Differentiate between Amplitude Shift Keying and Frequency Shift Keying.**

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c) **Maximum bandwidth is occupied by ASK or FSK ?**

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