

Experiment–7

Aim:	
To study Pulse Amplitude Modulation using MATLAB.	
Description:	
MATLAB software with essential configurations.	
Theory:	
Pulse Amplitude Modulation (PAM) is a form of signal modulation where the amplitude of a series of pulses is varied in accordance with the amplitude of a modulating signal. In simpler terms, it's a method used to encode analog signals into digital signals by varying the amplitude of the pulses.	
Code:	
1	<i>%pulse amplitude modulation</i>
2	<i>%1. to study the pulse amp and demod</i>
3	<i>%2. to study pulse width</i>
4	<i>%3. to generate pulse position</i>
5	<i>% Pulse Amplitude Modulation (PAM)</i>
6	close all; clear; clc;
7	t = 0:1/1e3:10;
8	d = 0:1/5:10;
9	x = 5 + sin(2*pi*(1/4)*2*t);
10	figure;
11	subplot(3,1,1);
12	plot(t, x);
13	title('Message Signal');
14	xlabel('Time (s)');
15	ylabel('Amplitude');
16	
17	<i>% Generate pulse input</i>
18	y = pulstran(t, d, 'rectpuls', 0.1);
19	subplot(3,1,2);
20	plot(y);
21	title('Pulse Input');
22	xlabel('Time (s)');
23	ylabel('Amplitude');
24	
25	<i>% PAM modulation</i>
26	z = x.*y;
27	subplot(3,1,3);
28	plot(z);
29	title('PAM Modulated Signal');
30	xlabel('Time (s)');
31	ylabel('Amplitude');

32 sgtitle('Sujal Singh (04119051723)')

Output:

