

GANDHI SCHOOL OF ENGINEERING, BHABANDHA, BERHAMPUR

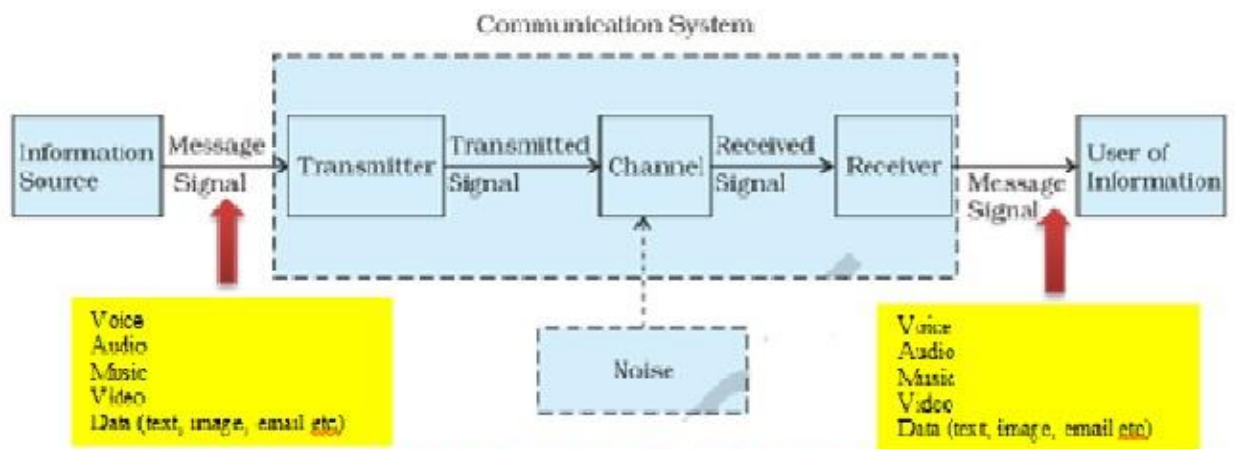


# TEACHING LEARNING MATERIAL OF ANALOG & DIGITAL COMMUNICATION

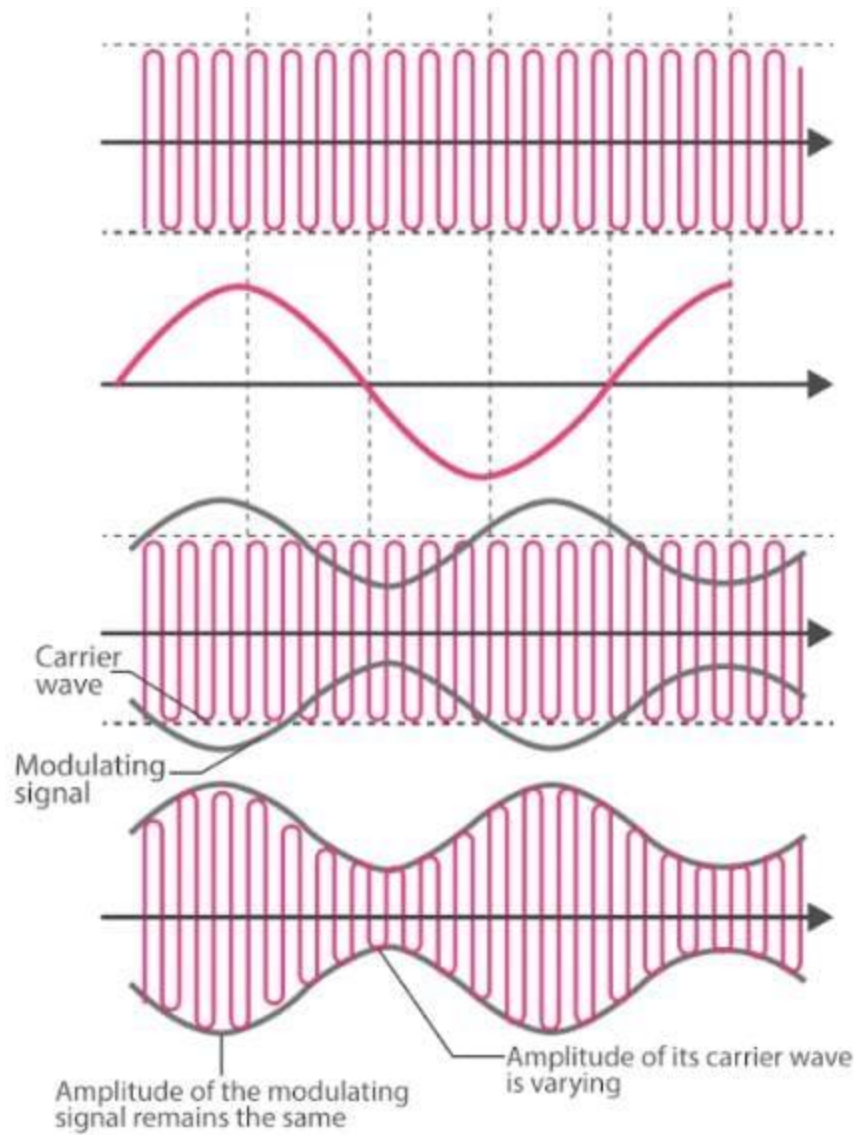
## ELEMENTS OF COMMUNICATION



## BLOCK DIAGRAM OF COMMUNICATION

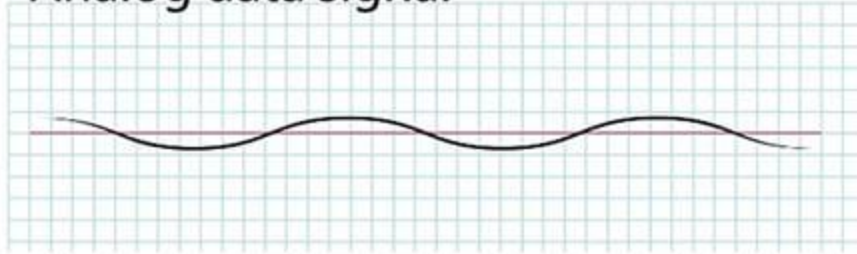


**FIGURE** Block diagram of a generalised communication system.

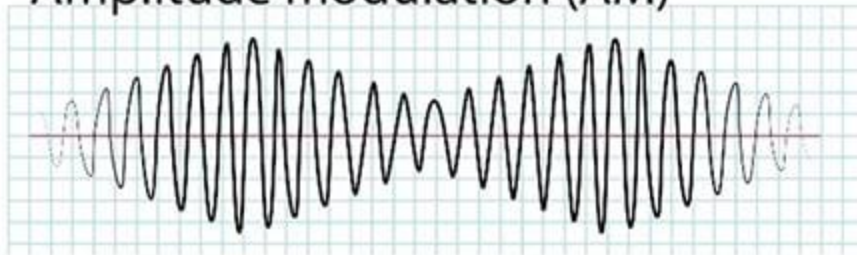


## AMPLITUDE MODULATION

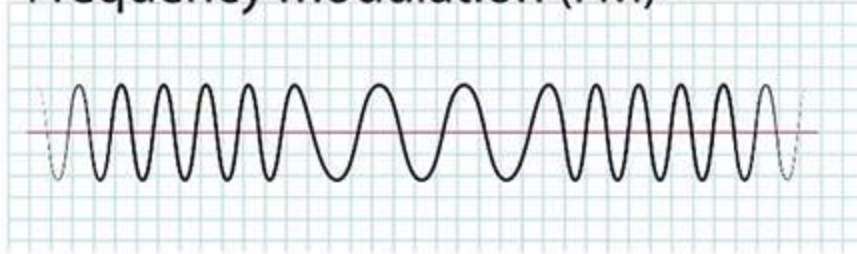
Analog data signal



Amplitude modulation (AM)



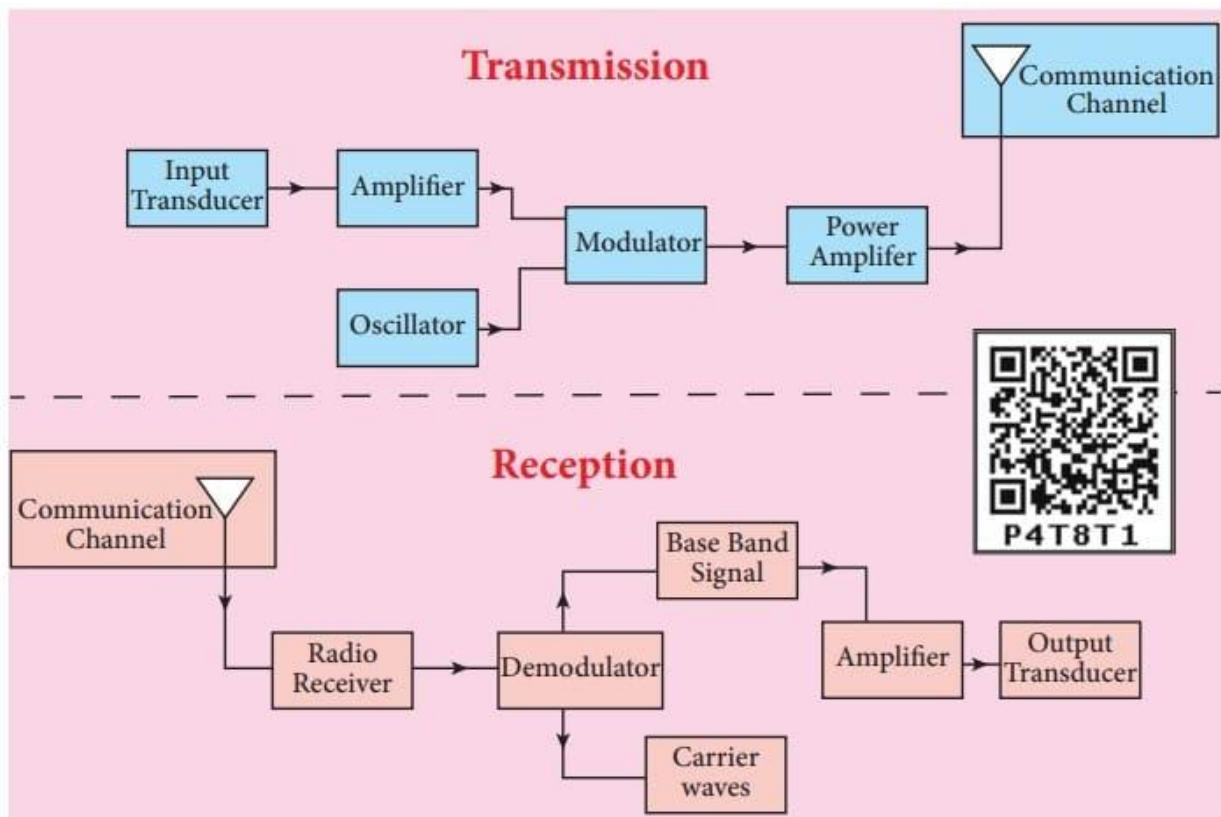
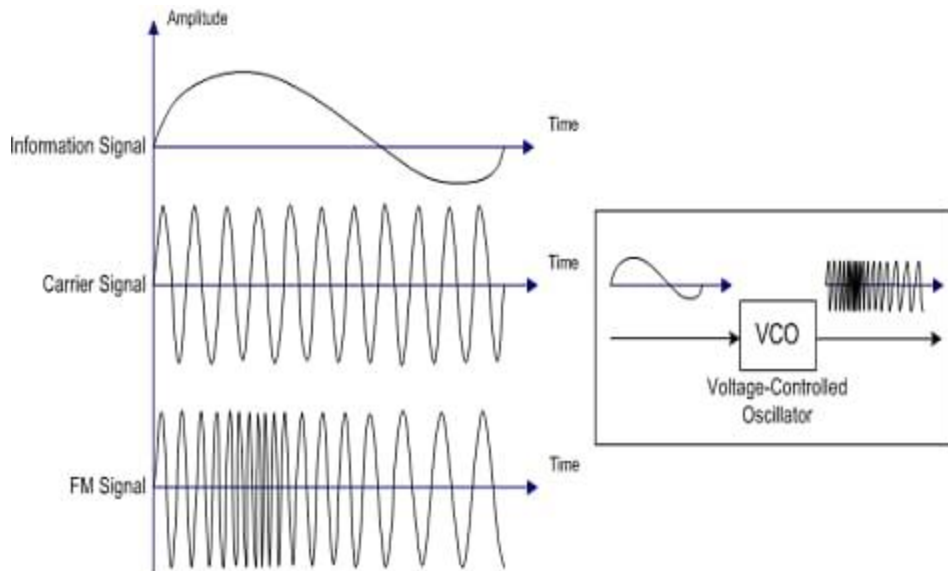
Frequency modulation (FM)



---

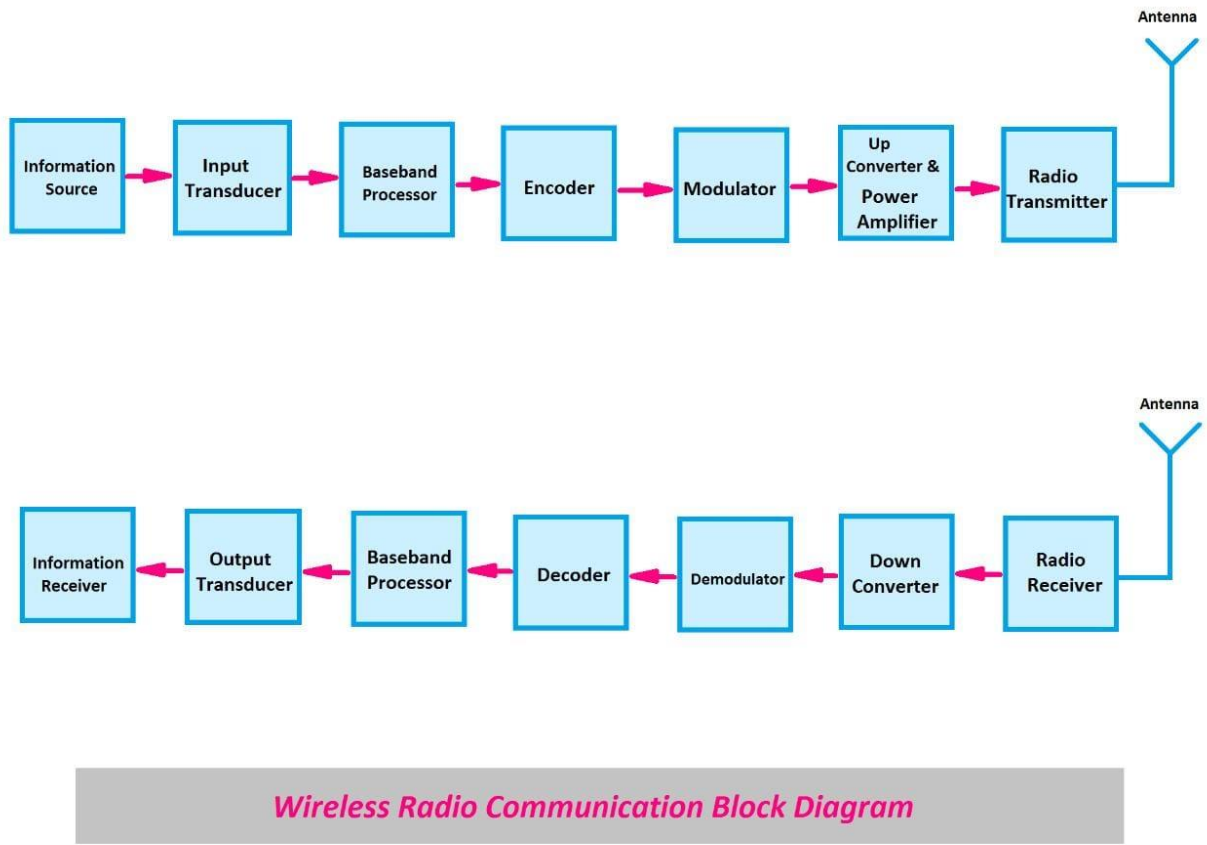
---

**FREQUENCY MODULATION**

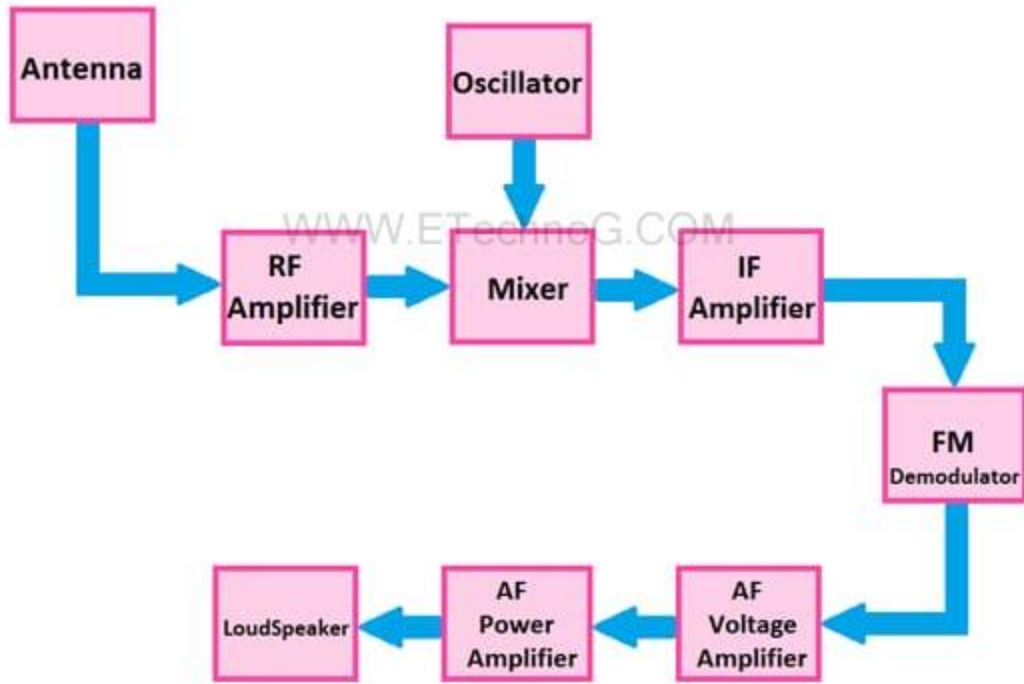


**Figure 10.4** Block diagram of transmission and reception of voice signals

**TRANSMISSION AND RECEPTION**

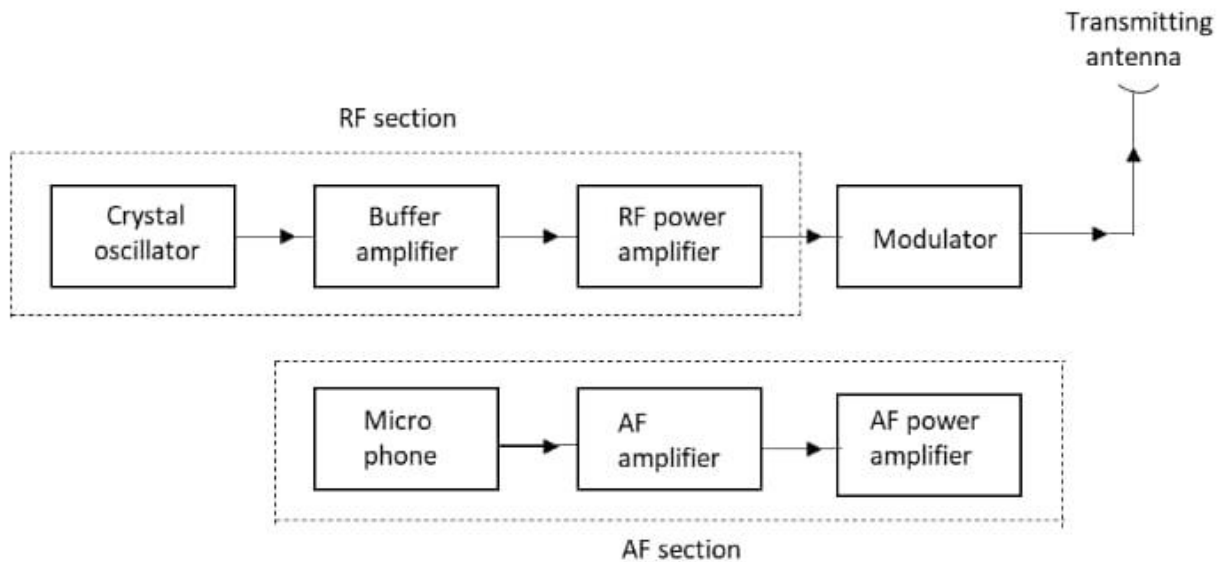


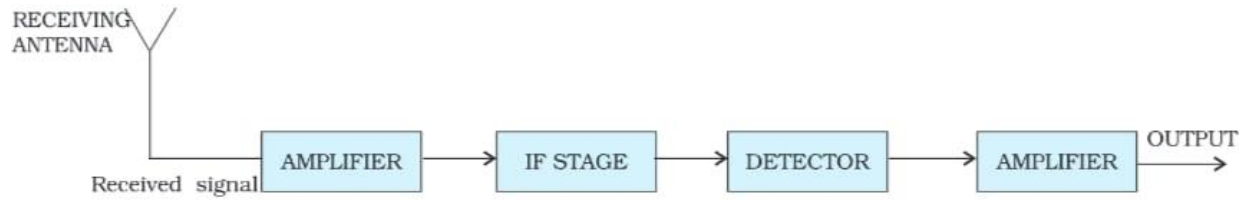
**BLOCK DIAGRAM OF RADIO COMMUNICATION**



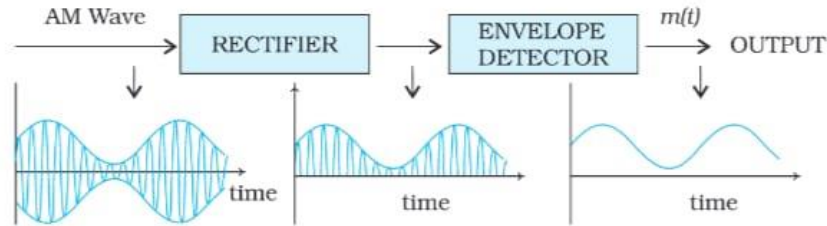
FM Receiver Block Diagram

**BLOCK DIAGRAM OF FM RECEIVER**





(a)



(b)

**BLOCK DIAGRAM OF AM RECEIVER**

**Analog Transmission**  
**Digital - to - Analog Conversion**  
**Types : ASK, FSK, PSK**

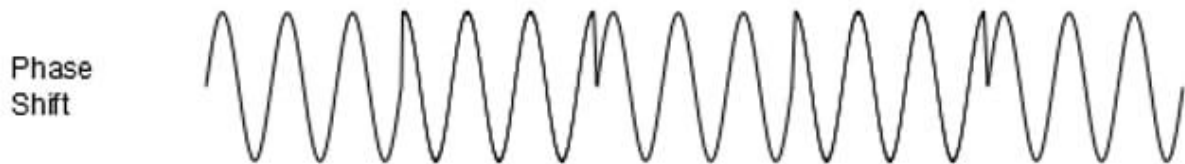
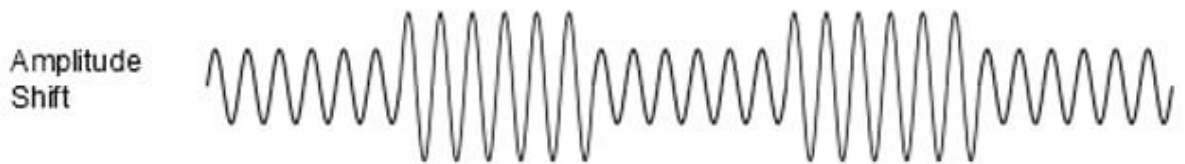
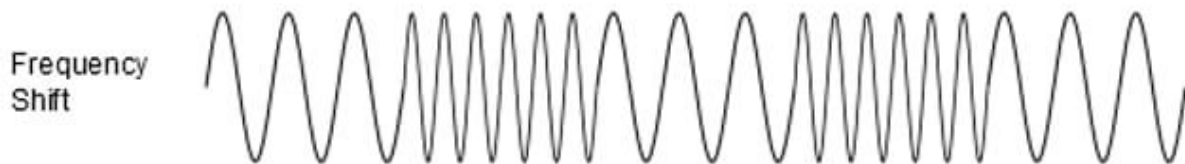
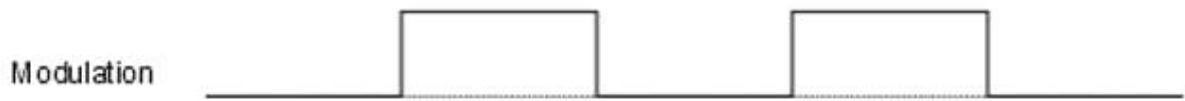
Information	1	0	1	1	0	1
(a) Amplitude Shift Keying <b>ASK</b>	[Graph showing ASK waveforms for bits 1, 0, 1, 1, 0, 1. Bit 0 is represented by zero amplitude.]					
(b) Frequency Shift Keying <b>FSK</b>	[Graph showing FSK waveforms for bits 1, 0, 1, 1, 0, 1. Bit 0 is represented by a lower frequency than bit 1.]					
(c) Phase Shift Keying <b>PSK</b>	[Graph showing PSK waveforms for bits 1, 0, 1, 1, 0, 1. Bit 0 is represented by a phase shift of 180 degrees compared to bit 1.]					

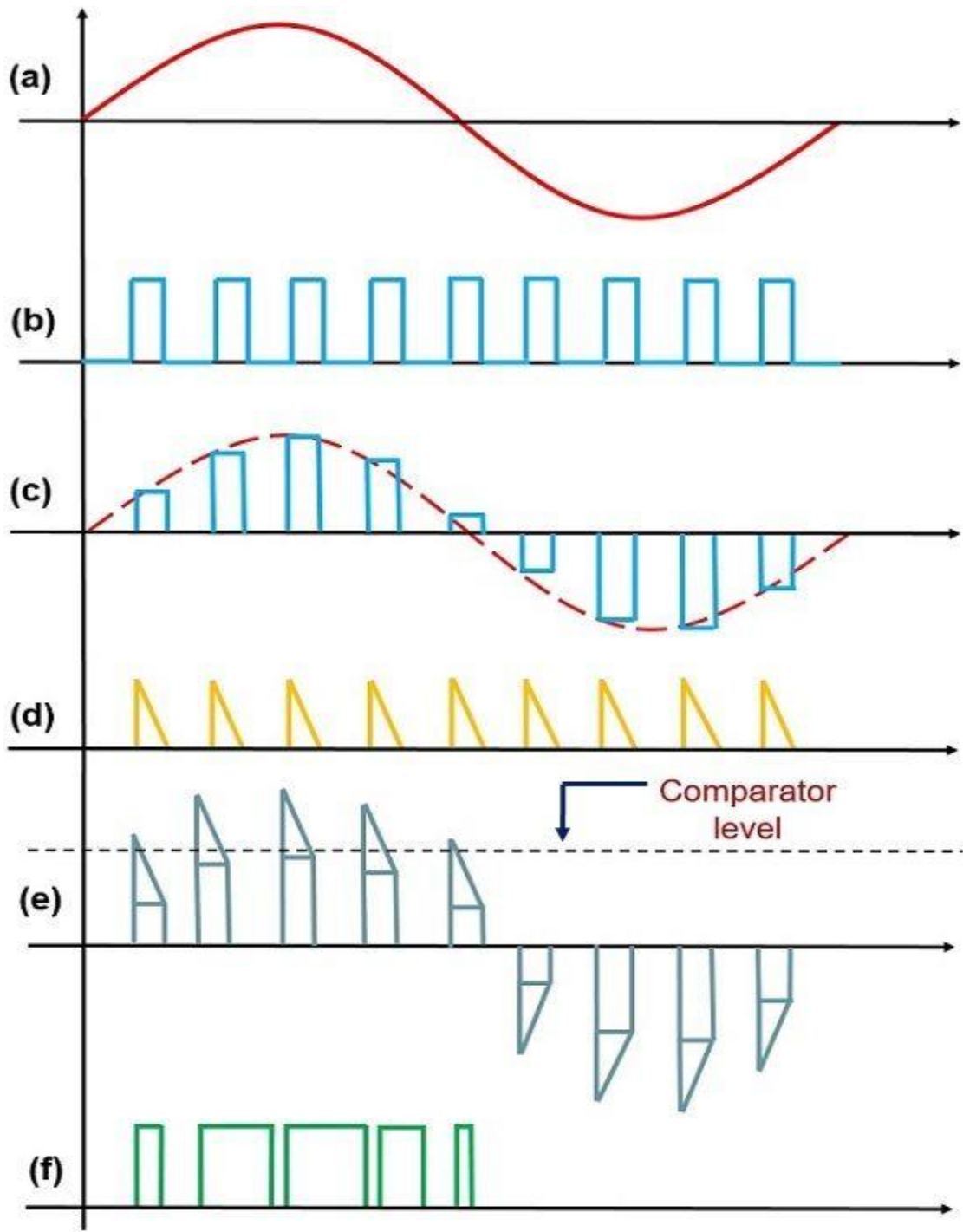
01.10.11 04:01 5

**ASK,FSK,PSK**



Digital Data | 0 | 1 | 0 | 1 | 0 |



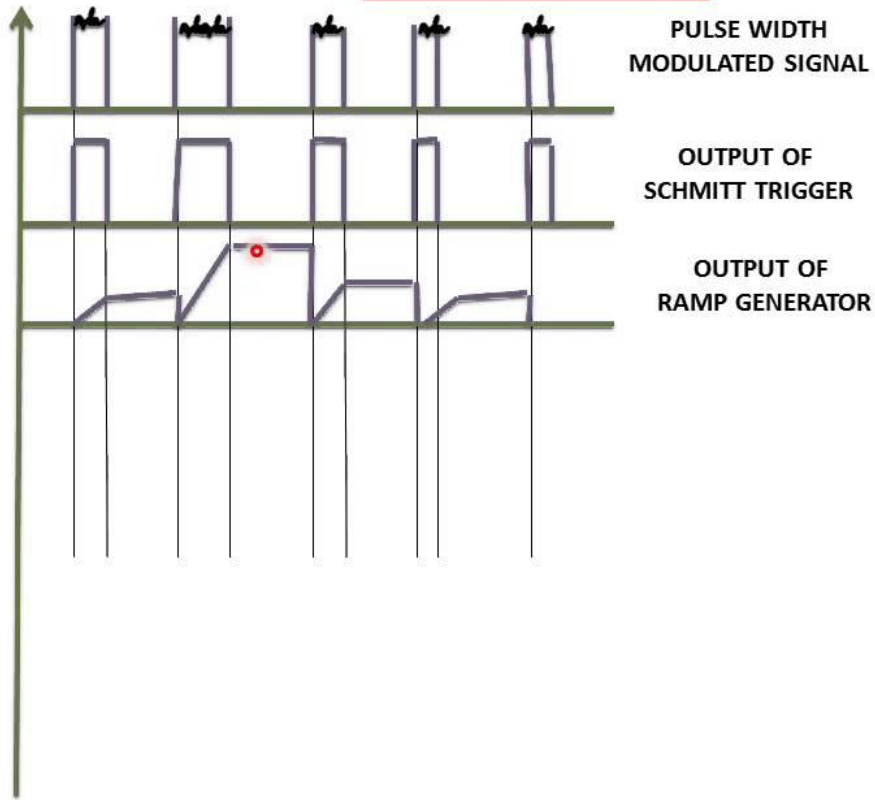


Waveform representation of PWM signal generation

Electronics Coach

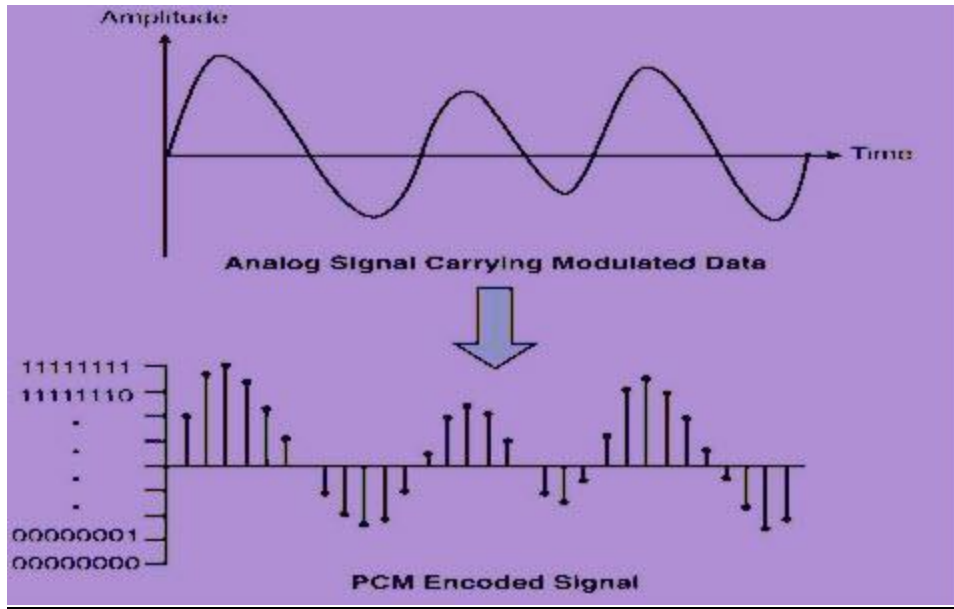
PULSE WIDTH MODULATION

# DEMODULATION OF PULSE WIDTH MODULATION SIGNAL (PWM)

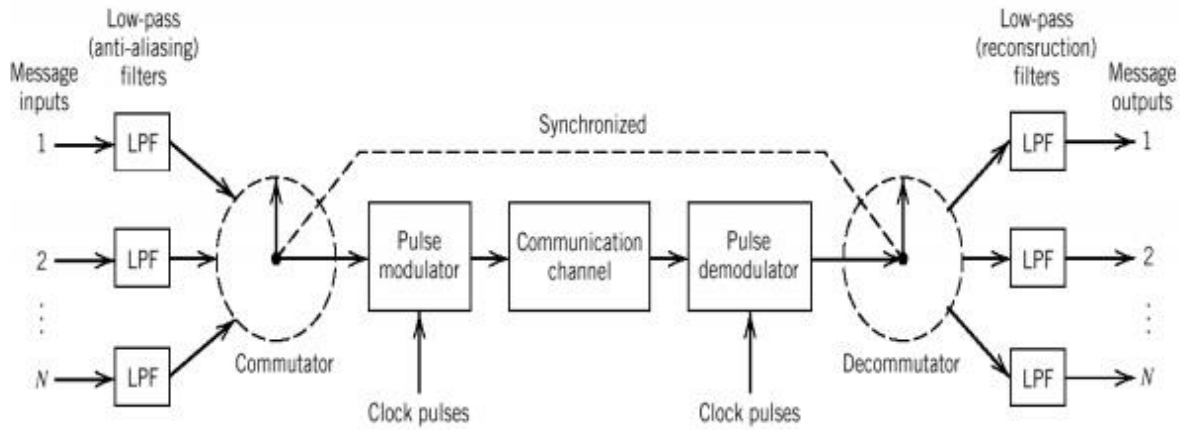


---

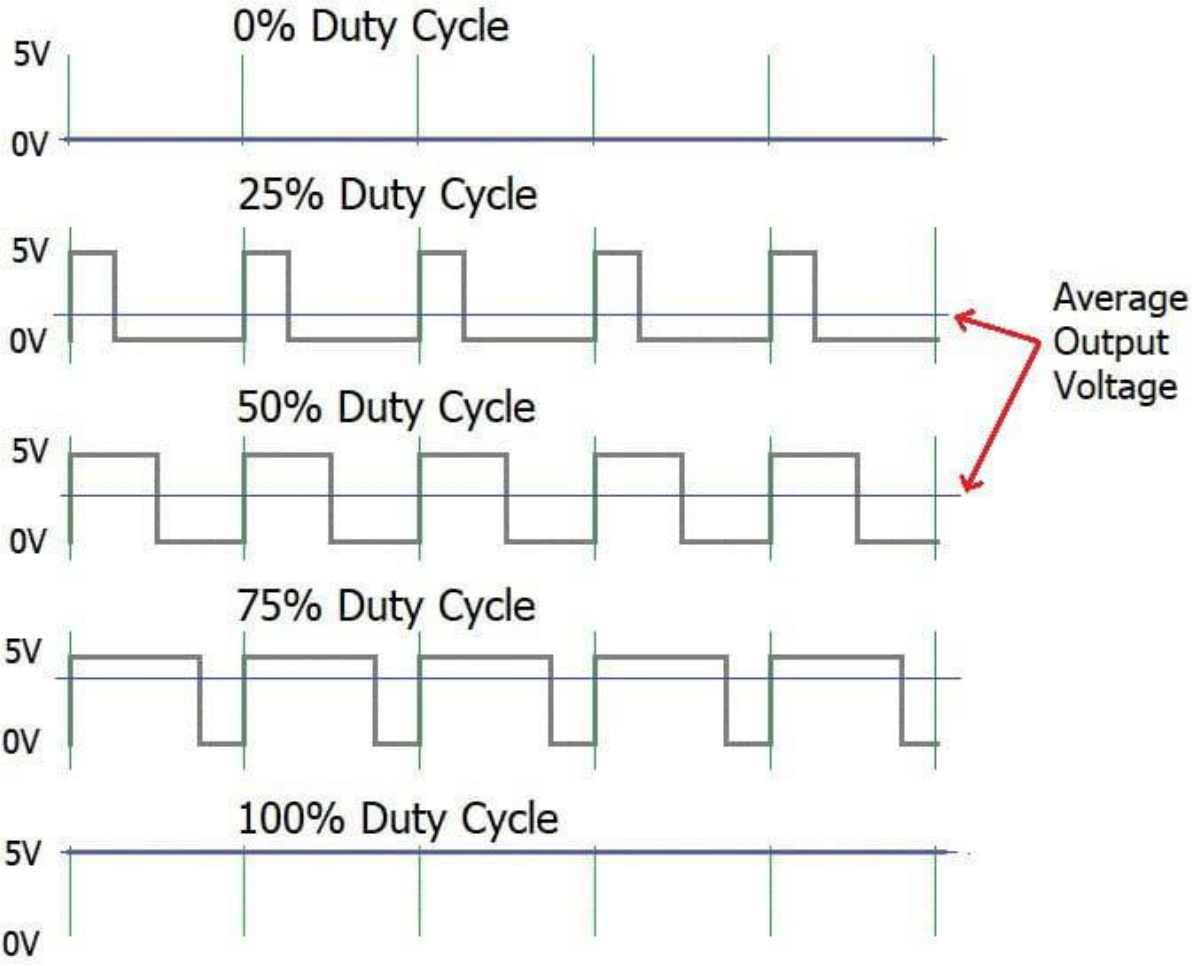
DEMODULATION OF PULSE WIDTH MODULATION

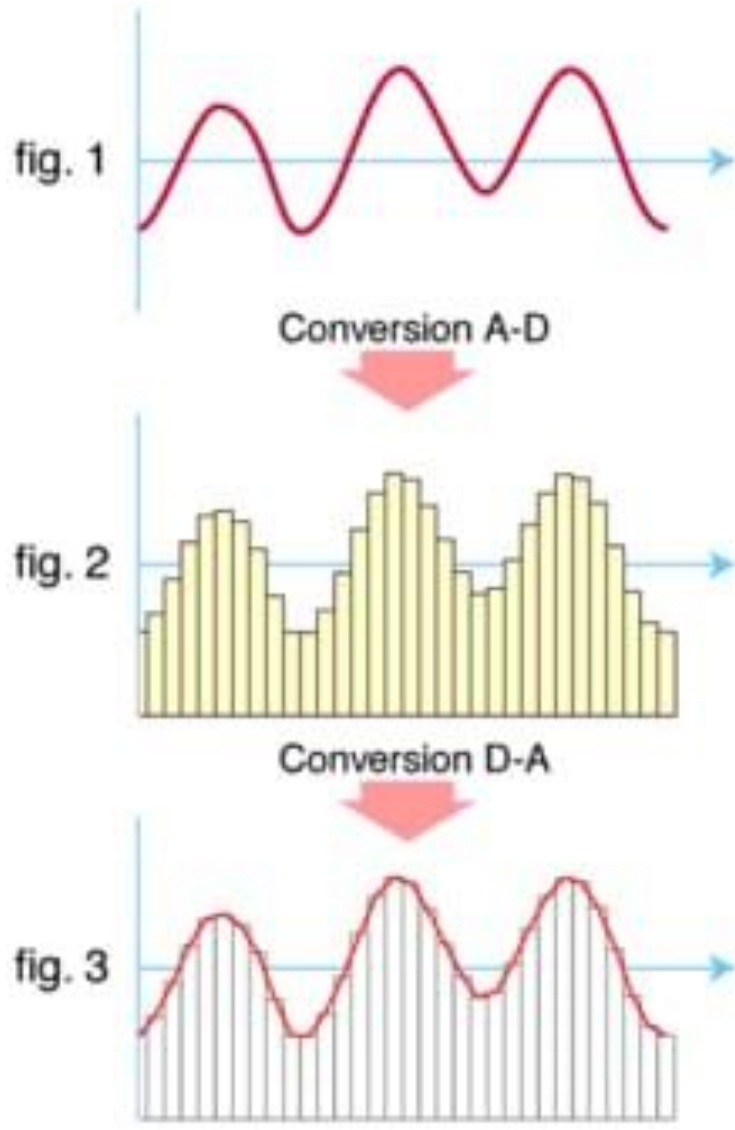


## PULSE CODE MODULATION



## TIME DIVISION MULTIPLEXING





---

**ANALOG TO DIGITAL CONVERSION**