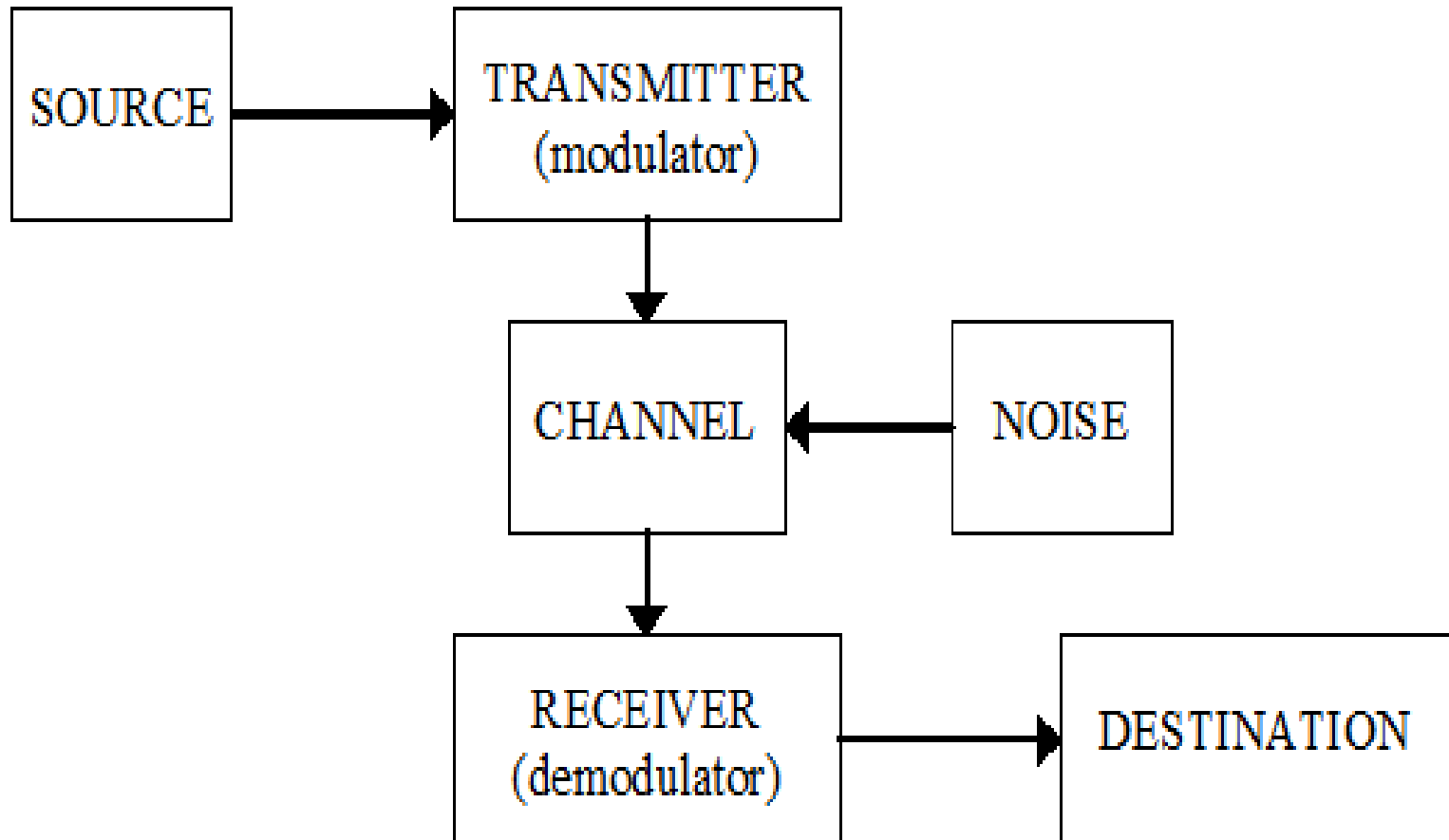


# Introduction to Communication System

- Communication is the process by which information is exchanged between individuals through a medium.
- Communication can also be defined as the transfer of information from one point in space and time to another point.

# Basic block diagram of a communication system



**Transmitter:** Couples the message into the channel using high frequency signals.

**Channel:** The medium used for transmission of signals

**Modulation:** It is the process of shifting the frequency spectrum of a signal to a frequency range in which more efficient transmission can be achieved.

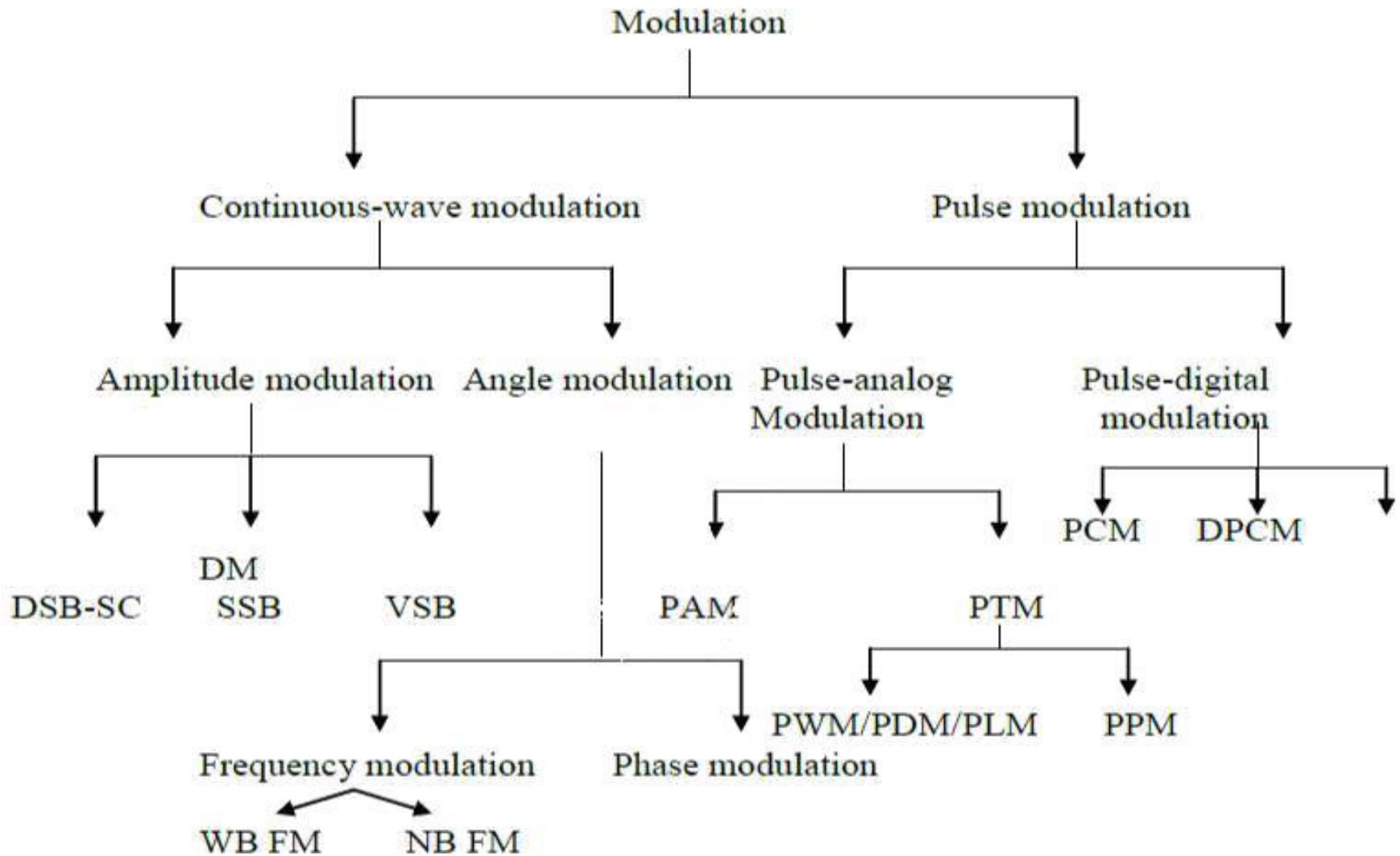
**Receiver:** Restores the signal to its original form.

**Demodulation:** It is the process of shifting the frequency spectrum back to the original baseband frequency range and reconstructing the original form.

# Modulation

- Modulation is a process that causes a shift in the range of frequencies in a signal.
- Signals that occupy the same range of frequencies can be separated.
- Modulation helps in noise immunity, attenuation - depends on the physical medium.

# TYPE OF MODULATION



# Need for Modulation

- Baseband signals are incompatible for direct transmission over the medium so, modulation is used to convey (baseband) signals from one place to another.
- Allows frequency translation:
  - Frequency Multiplexing
  - Reduce the antenna height
  - Avoids mixing of signals
  - Narrow banding
- Efficient transmission
- Reduced noise and interference