

Fundamentals of Communication Engineering



Communication Systems



- **Basic components:**
 - Transmitter
 - Channel or medium
 - Receiver
- **Noise** degrades or interferes with transmitted information.

Communication Systems

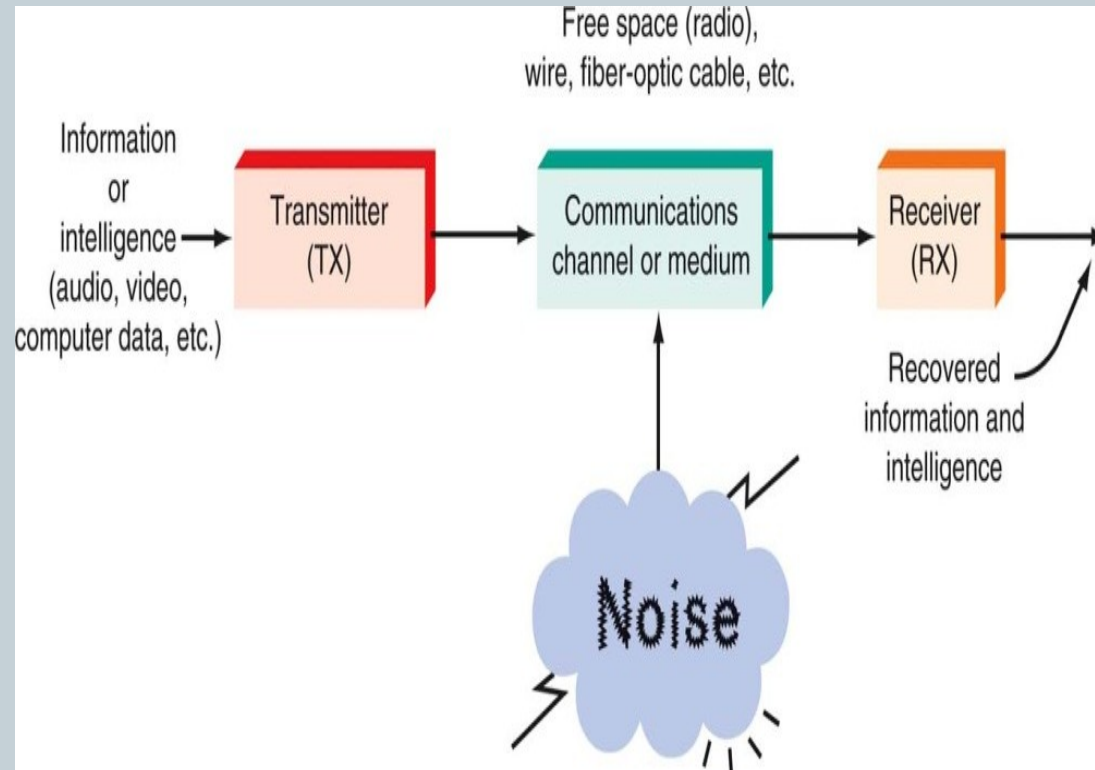


Figure 1: A general model of all communication systems.

Communication Systems



Transmitter

- The **transmitter** is a collection of electronic components and circuits that converts the electrical signal into a signal suitable for transmission over a given medium.
- Transmitters are made up of oscillators, amplifiers, tuned circuits and filters, modulators, frequency mixers, frequency synthesizers, and other circuits.

Communication Systems



Communication Channel

- The **communication channel** is the medium by which the electronic signal is sent from one place to another.
- Types of media include
 - ✦ Electrical conductors
 - ✦ Optical media
 - ✦ Free space
 - ✦ System-specific media (e.g., water is the medium for sonar).