

# Transmission Concept Characteristics

- Type of signaling
- Direction
- Number of senders/receivers & relationships
- Throughput
- Transmission form

## Type of Signaling - Analog

- Analog: based upon sine wave characteristics
  - Amplitude – measure of strength
  - Frequency – number of times that a signal's amplitude cycles from starting point to highest or lowest and lowest to highest over a fixed period of time; cycles per second – Hertz
  - Wavelength – distance between corresponding points on cycle; Expressed in meters or feet
  
  - Phase – wave position in relationship to starting or fixed point

## Type of Signaling - Digital

- Discrete signals
- Voltage determines whether recognized as 0 or 1
  - Positive – 1
  - Zero - 0
- Not as susceptible to noise – logically more easily reconstructed

## Transmission Direction

- Simplex – only transmits in one direction
- Half-duplex – transmit in both direction but not at same time
- Duplex – transmits in both direction over a medium at the same time; sometimes referred to as full-duplex

## Multiplexers and Channels

- Device that allows multiple signals to travel at the same time over the transmission medium
- Some techniques:
  - Time Division Multiplexing
  - Statistical Multiplexing
  - Wavelength Division – fiber only

## Number of senders/receivers & relationships

- Point-to-point
  - One sender to one receiver
- Broadcast
  - One sender and multiple receivers

## Throughput

- Measure of how much data is transmitted over a given period of time
  - Capacity of network to move data

## Baseband and Broadband

- Baseband: transmit only one signal at a time; direct current; digital signal
- Broadband: modulated as radio frequency analog pulses that use different ranges
- [some broadband terminology refers to high transmission rates of digital form]