Transmission Media

1. Guided Media
2. Unguided media

Transmission Media

- Each media has its own bandwidth , delay, cost and ease of installation

- **Guided Transmission media**

1. Magnetic Media
2. Twisted pair
3. Base bad coaxial cable
4. Broad band Coaxial cable
5. Optical Fiber cable

Magnetic Media

- **Magnetic** storage or **magnetic** recording is the storage of data on a Magnetised **medium**
- Common transport type from one PC to other
- It is Accomplished by writing data into video tapes , Floppy disc, magnetic tape, pen drives
- Method is not sophisticated
- Cost and Storage are serious concern

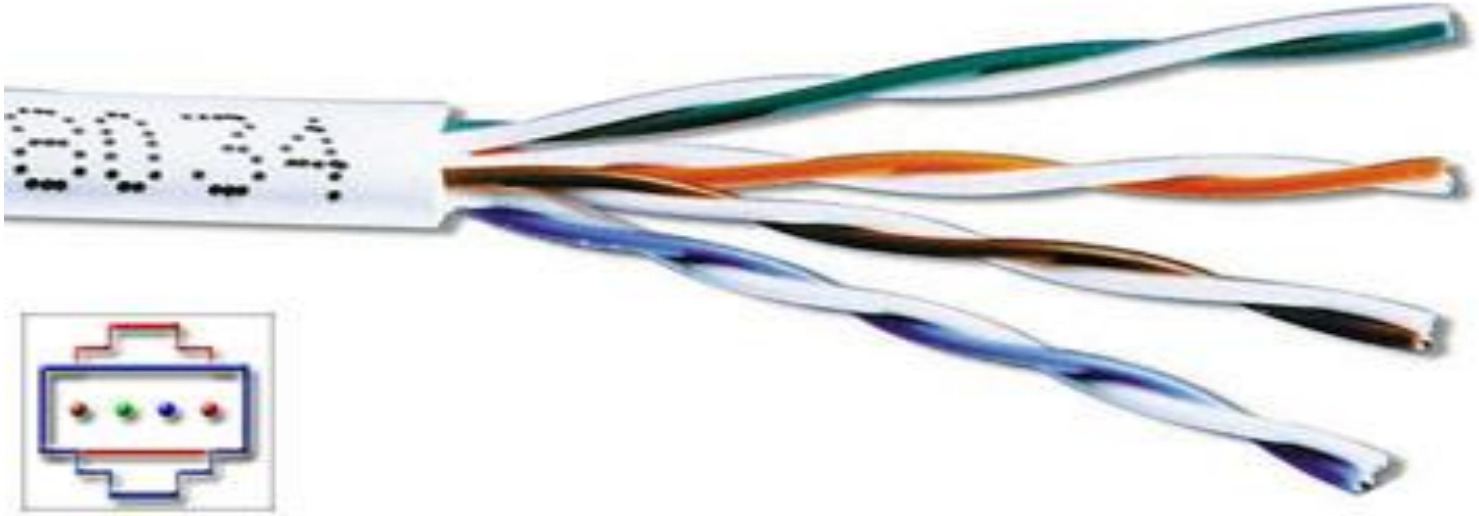
Magnetic Media

Twisted pair

- Consists of two insulating copper wires typically 1mm thick
- Wires are twisted together in Helical
- Reduces electrical interface
- Used in telephone system
- Run several km without amplification
- Can be used for analog and digital transmission
- Low cost- widely used

Shielded twisted pair (STP)

Unshielded twisted pair (UTP)



Twisted pair

- Bandwidth depends on thickness of wire
- Category 3 twisted pair is used in Telephony
- Category 5 twisted pair used for data Tx upto 100 Mbps

Twisted Pair Wires

- Category 3 UTP
  - data rates of up to 10mbps are achievable
  - Standard cable for most telephone systems
- Category 5 UTP
  - data rates of up to 100mbps are achievable
  - more tightly twisted than Category 3 cables
  - more expensive, but better performance
  - Used in LAN.
- STP
  - More expensive, harder to work with

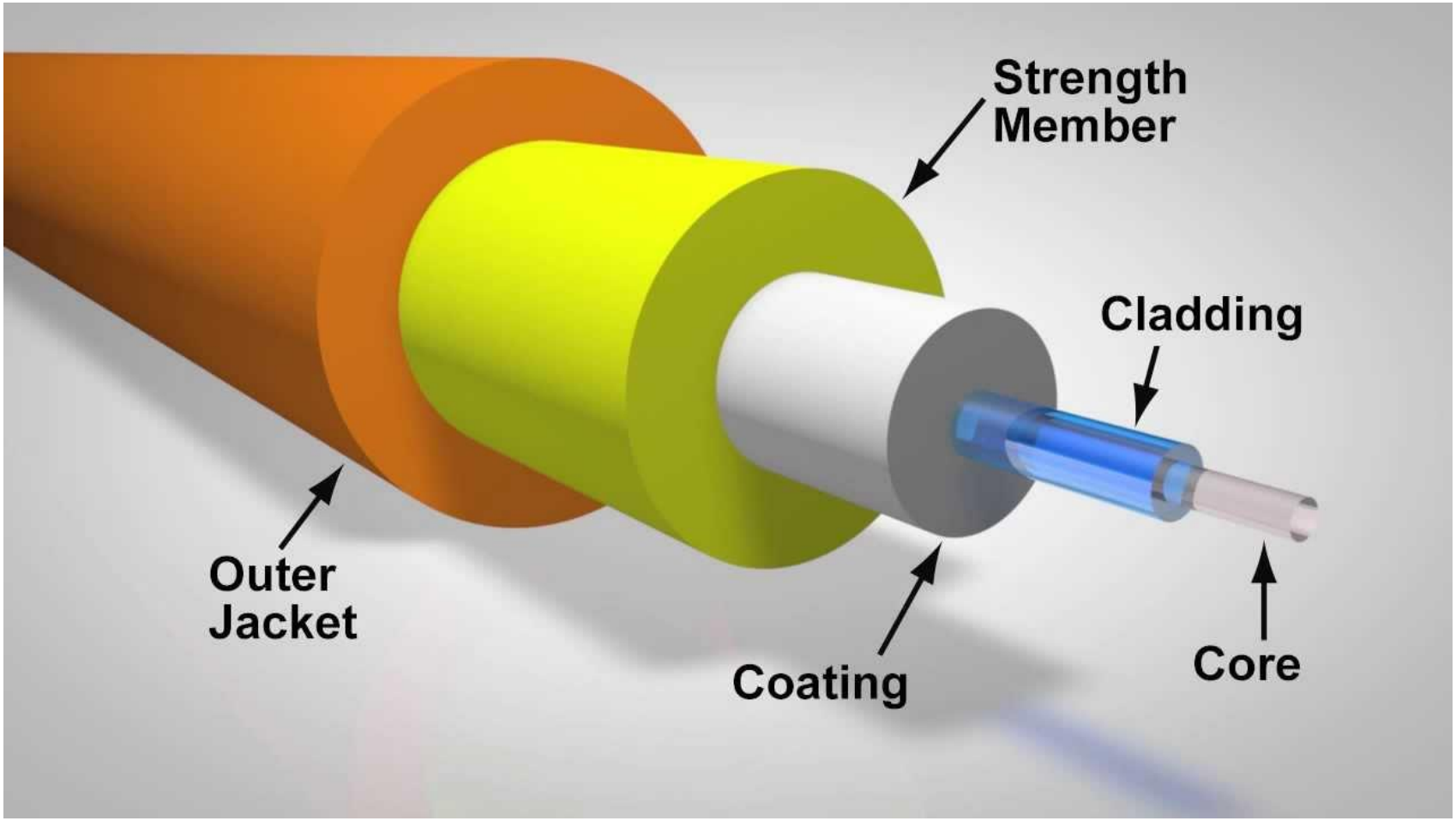
Base band Coaxial cable

- Gives better shielding then twisted pair
- Serve long distances with high speed
- 5o ohm cable used for digital transmission
- 75 ohm used for Analog transmission
- Used in telephone lines Cable TV
- Bandwidth possible depends on cable length

Broad band coaxial cable

- It uses Analog transmission
- It uses Std Cable Tv technology
- Run up to 100km
- Difference between base band and broad band cable is system covers large area and need analog amplifiers
- Two types- Dual cable and single cable

Optical fiber cable



Copper cable vs Fiber cable

Copper Wires	Fiber Cables
Less band width	High band width
High attenuation	Low attenuation
Repeaters are required for every 5 km	No need of repeaters
Affected by interference	Not effected by interference

Optical fiber cable

- Single Mode Fiber Optic Cable is used for both inter building and intra building backbone cable.
- At distances up to 3 km, single mode fiber will deliver data rates up to **10 Gbps** with a bandwidth of **20Ghz**.
- Its operating wavelengths are 1310 nm and 1550 nm