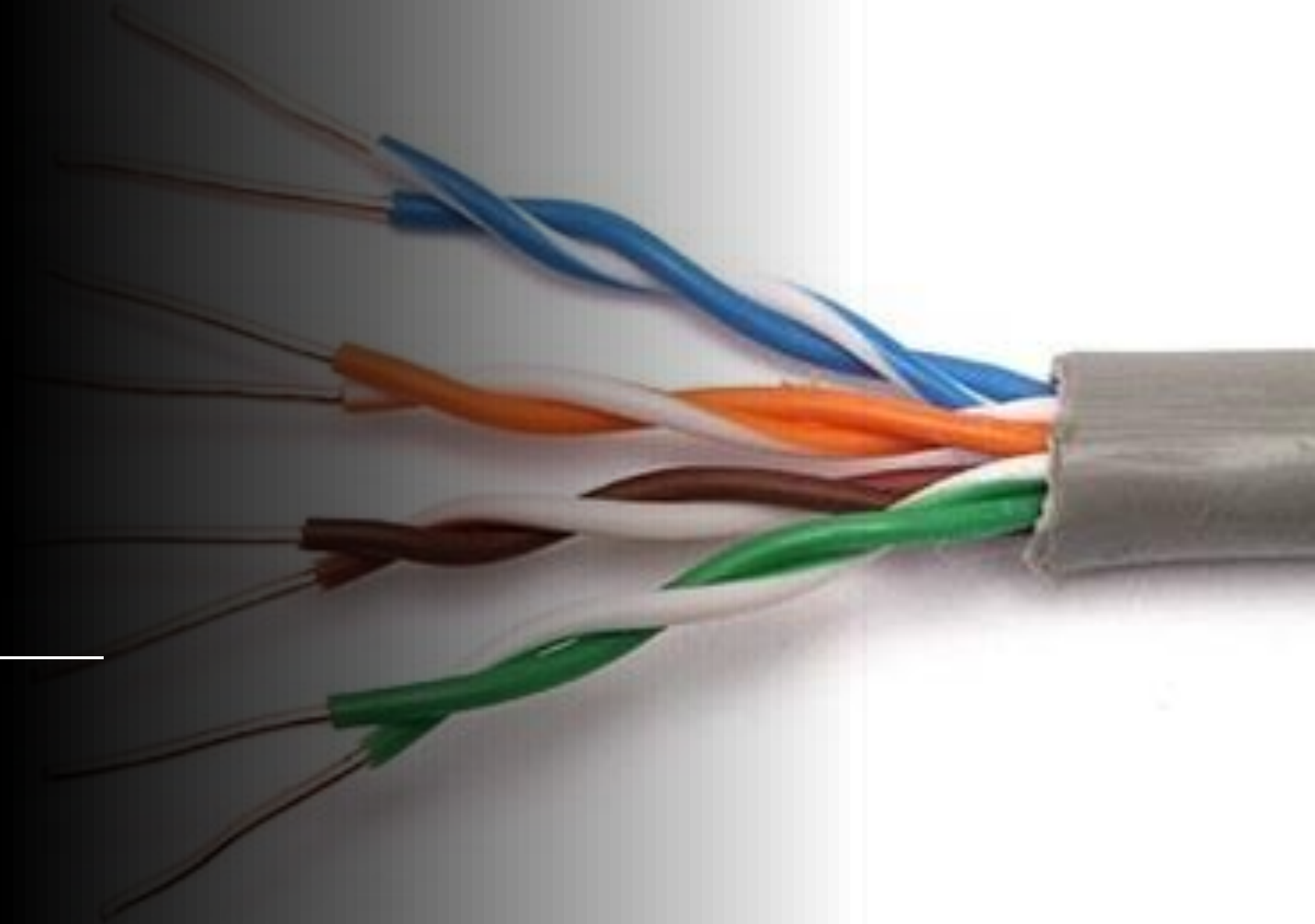


WHAT IS TWISTED PAIR ?

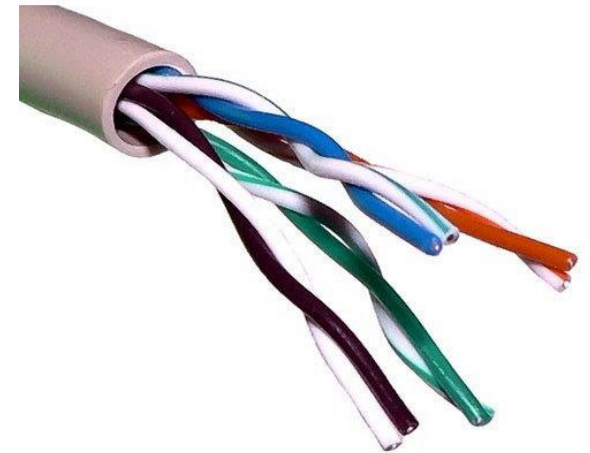


What is twisted pair cable ?

Twisted pair cabling is a type of wiring in which two conductors of a signal circuit are twisted together for the purpose of improving electromagnetic compatibility

What is the use of twisted pair ?

Twisted-pair cable is a type of wiring in which two conductors of a single circuit are twisted together for the purpose of improving electromagnetic compability.



Advantages of twisted pair cable :

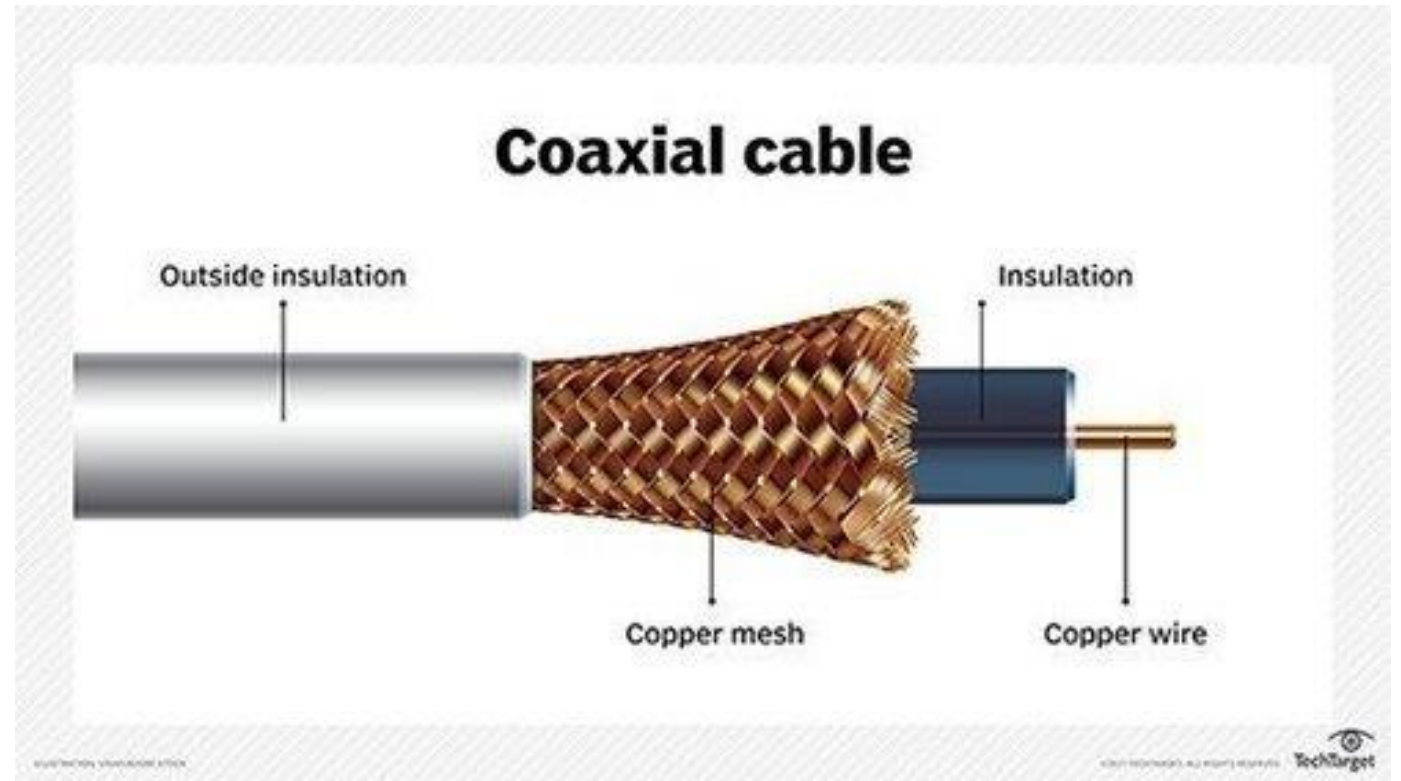
□ Twisted pair cable are the oldest and most popular all over the world. This is due to the many advantages that they offer:

- Trained personnel easily available due to shallow learning curve.
- Can be used for both analog and digital transmissions.
- Least expensive for short distances.
- Entire network does not go down if a part of network is damaged.

Disadvantages of twisted pair cable :

- **Signal cannot travel long distances without repeaters.**
- **High error rate of distances greater than 100m.**
- **Very thin and hence breaks easily.**
- **Not suitable for broadband connections.**

WHAT IS COAXIAL CABLE ?



What is coaxial cable ?

Coaxial cable, or coax is a type of electric cable consisting of an inner conductor surrounded by a concentric conducting shield, with the two separated by a dielectric; many coaxial cables also have a protective outer sheath or jacket.

Use of coaxial cable ?

Coaxial cable is used as a transmission line for radio frequency signals. Its applications include feedlines connecting radio transmitters and receivers to their antennas, computer network (ex. Ethernet) connections, digital audio , and distribution of cable television signals.



Advantages of coaxial cables :

□ **These are the advantages of coaxial cable :**

- **Excellent noise immunity.**
- **Signals can travel longer distances at higher speeds ex: 1 to 2 gbps for 1 km cable.**
- **Can be used for both analog and digital signals.**
- **Inexpensive as compared to fibre optic cables.**
- **Easy to install and maintain.**

Disadvantages of coaxial cable :

□ These are some disadvantages of coaxial cable :

- Expensive as compared to twisted pair cables.
- Not compatible with twisted pair cables.

WHAT IS FIBER OPTICS ?



What is fiber optics ?

An optical fiber is a flexible, transparent fiber made by drawing glass or plastic to a diameter slightly thicker than that of a human hair.

Use of fiber cables :

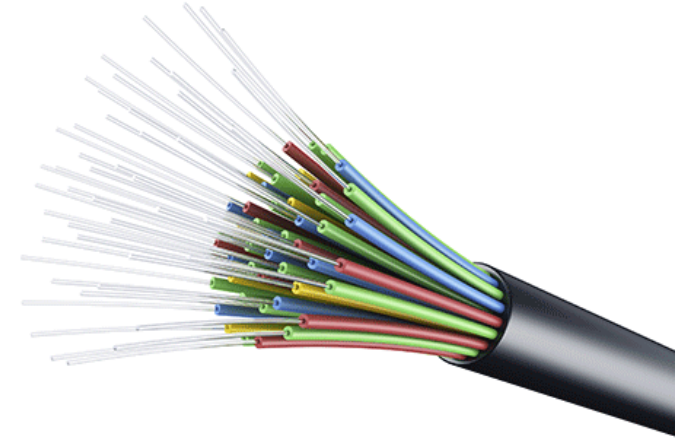
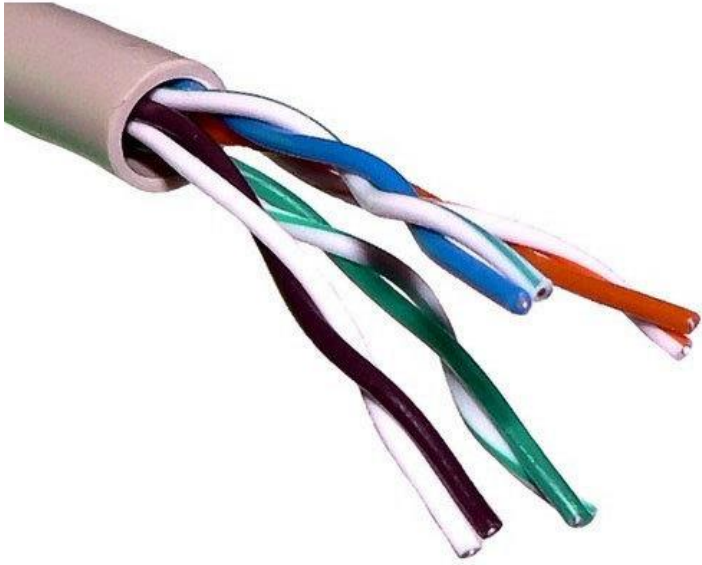
Optical fibers are used most often as a means to transmit light between the two ends of the fiber and find wide usage in fiber – optic communications, where they permit transmission over longer distances and at higher bandwidth (data transfer rates) than electrical cables.

Advantages of fiber optical cable :

- **Able to carry significantly more signals than wire.**
- **Faster data transmission.**
- **Less susceptible to noise from other devices.**
- **Better security for signals during transmission.**
- **Smaller physical size.**

Disadvantages of fiber optic cables :

- **Coasts more than twisted pair and coaxial cable.**
- **Can be difficult to install and modify.**
- **More expensive over shorter distances.**



Difference between twisted pair cable, coaxial cable and fiber optics.

<u>Twisted pair cable</u>	<u>Coaxial cable</u>	<u>Fibre optics</u>
Low noise immunity	Higher noise immunity than twisted pair	Higher noise immunity
It is affected to the external magnetic field.	It is less affected due to the external magnetic field	Not affected
Cheapest	Comparably cheaper than twisted pair	expensive
Low bandwidth	Comparably high bandwidth than twisted pair	Very high bandwidth
Installation is easy	Installation is easy	Installation is hard
Unshield twisted pair (UTP) Shielded twisted pair (STP)	RG59 RG6	Single mode fiber (SMF) Multimode mode fiber (MMF)
Larger in diameter	Larger in diameter	Small in diameter