



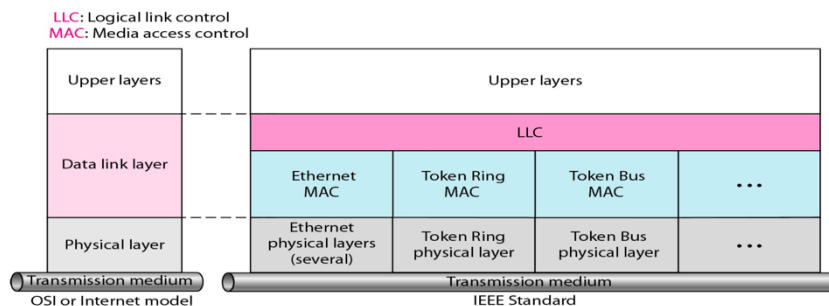
**DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND
MACHINE LEARNING
19CSB302 - COMPUTER NETWORKS**

Wired LAN-Ethernet

In 1985, the Computer Society of the IEEE started a project, called Project 802, to set standards to enable intercommunication among equipment from a variety of manufacturers.. Project 802 is a way of specifying functions of the physical layer and the data link layer of major LAN protocols

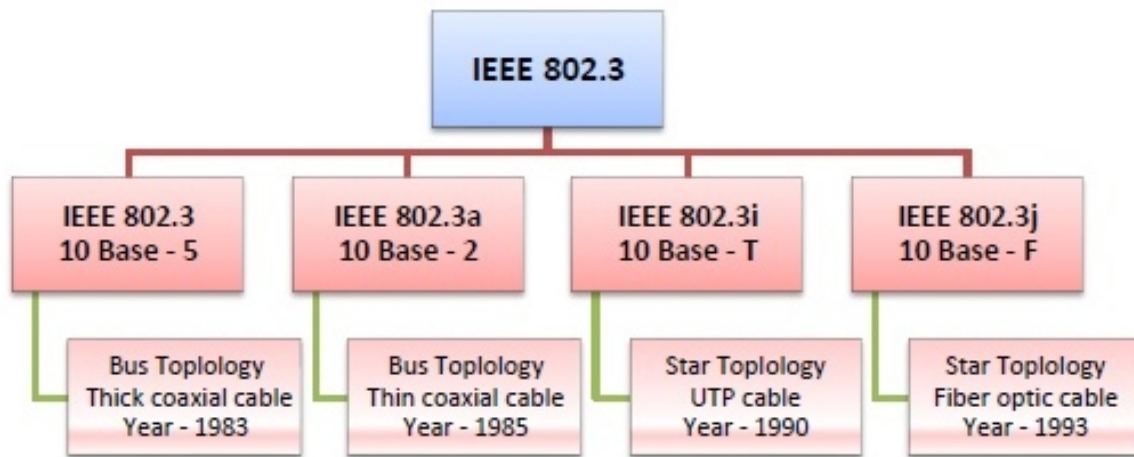
- For Wired LAN Ethernet – IEEE 802.3

IEEE STANDARD FOR LAN



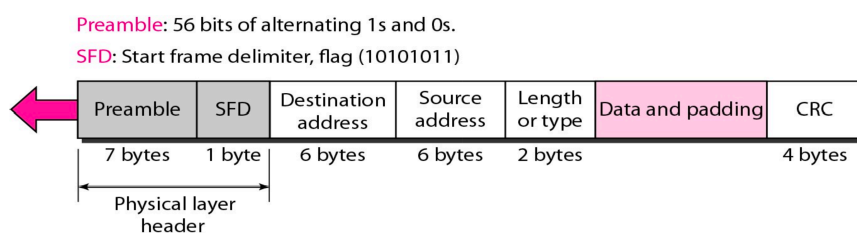
IEEE 802.3 Popular Versions

There are a number of versions of IEEE 802.3 protocol. The most popular ones are –



- **IEEE 802.3:** This was the original standard given for 10BASE-5. It used a thick single coaxial cable into which a connection can be tapped by drilling into the cable to the core. Here, 10 is the maximum throughput, i.e. 10 Mbps, BASE denoted use of baseband transmission, and 5 refers to the maximum segment length of 500m.
- **IEEE 802.3a:** This gave the standard for thin coax (10BASE-2), which is a thinner variety where the segments of coaxial cables are connected by BNC connectors.
- **IEEE 802.3i:** This gave the standard for twisted pair (10BASE-T) that uses unshielded twisted pair (UTP) copper wires as physical layer medium.
- **IEEE 802.3j:** This gave the standard for Ethernet over Fiber (10BASE-F) that uses fiber optic cables as medium of transmission.

IEEE 802.3 Frame Format



- **Preamble:** It is the starting field that provides alert and timing pulse for transmission. In case of classic Ethernet it is an 8 byte field and in case of IEEE 802.3 it is of 7 bytes.
- **Start of Frame Delimiter:** It is a 1 byte field in a IEEE 802.3 frame that contains an alternating pattern of ones and zeros ending with two ones.
- **Destination Address:** It is a 6 byte field containing physical address of destination stations.
- **Source Address:** It is a 6 byte field containing the physical address of the sending station.
- **Length:** It a 2 bytes field that stores the number of bytes in the data field.

- **Data:** This is a variable sized field carries the data from the upper layers. The maximum size of data field is 1500 bytes.
- **Padding:** This is added to the data to bring its length to the minimum requirement of 46 bytes.
- **CRC:** CRC stands for cyclic redundancy check. It contains the error detection information.