

## Networking Course Content

**Overview:** Networking is the construction, design, and use of a network, including the physical (cabling, hub, bridge, switch, router, and so forth), the selection and use of telecommunication protocol and computer software for using and managing the network.

### **Session 1:**

- Introduction of Networking.
- Advantages of Networking.
- Goals and Objectives.
- Medium of Networks
  1. Wired Media
  2. Unwired Media
- Types of Network
  1. LAN
  2. MAN
  3. WAN

### **Session 2:**

- Cables and Connectors
- Networking Devices
- Ethernet
- Network Implementation
- Network Security
- Network Management
- Troubleshooting

### **Session 3:**

- Packet Switching (Internet)
- Challenge
  1. Many differences between networks
  2. Address formats
  3. Performance – bandwidth/latency
  4. Packet size
  5. Loss rate/pattern/handling
  6. Routing
  7. How to translate between various network technologies?
  8. Gateways

### **Session 4:**

- OSI Layers
- Extensions to the Network
- Mobile
- Wireless
- Sensor
- Delay Tolerant
- Content Distribution/Data Oriented Networks
- Lots of Functions Needed
- Link
- Multiplexing
- Routing
- Addressing/naming (locating peers)
- Reliability
- Flow control
- Fragmentation

### **Session 5:**

- Query session
- Competition
- Certificate Distribution