NETWORKING FUNDAMENTALS

Networking is communication between devices using wired or wireless connections.

OSI MODEL (7 Layers):

1. Physical – cables, signals

2. Data Link – error detection, MAC addresses

3. Network – IP addressing, routing

4. Transport – TCP, UDP

5. Session – managing sessions

6. Presentation – encryption, compression

7. Application – user applications

TCP/IP MODEL (4 Layers):

- Network Access, Internet, Transport, Application

IP ADDRESSING:

- IPv4 (32-bit, 192.168.1.1)

- IPv6 (128-bit, ::1)

SUBNETTING: Dividing a network into smaller networks.

NETWORK DEVICES:

- Router: connects networks

- Switch: connects devices in a LAN

- Hub: broadcasts to all ports

TYPES OF NETWORKS:

- LAN, WAN, MAN

SECURITY BASICS:

- Firewalls, antivirus, encryption