

# Data Communication and Computer Network BLM3051

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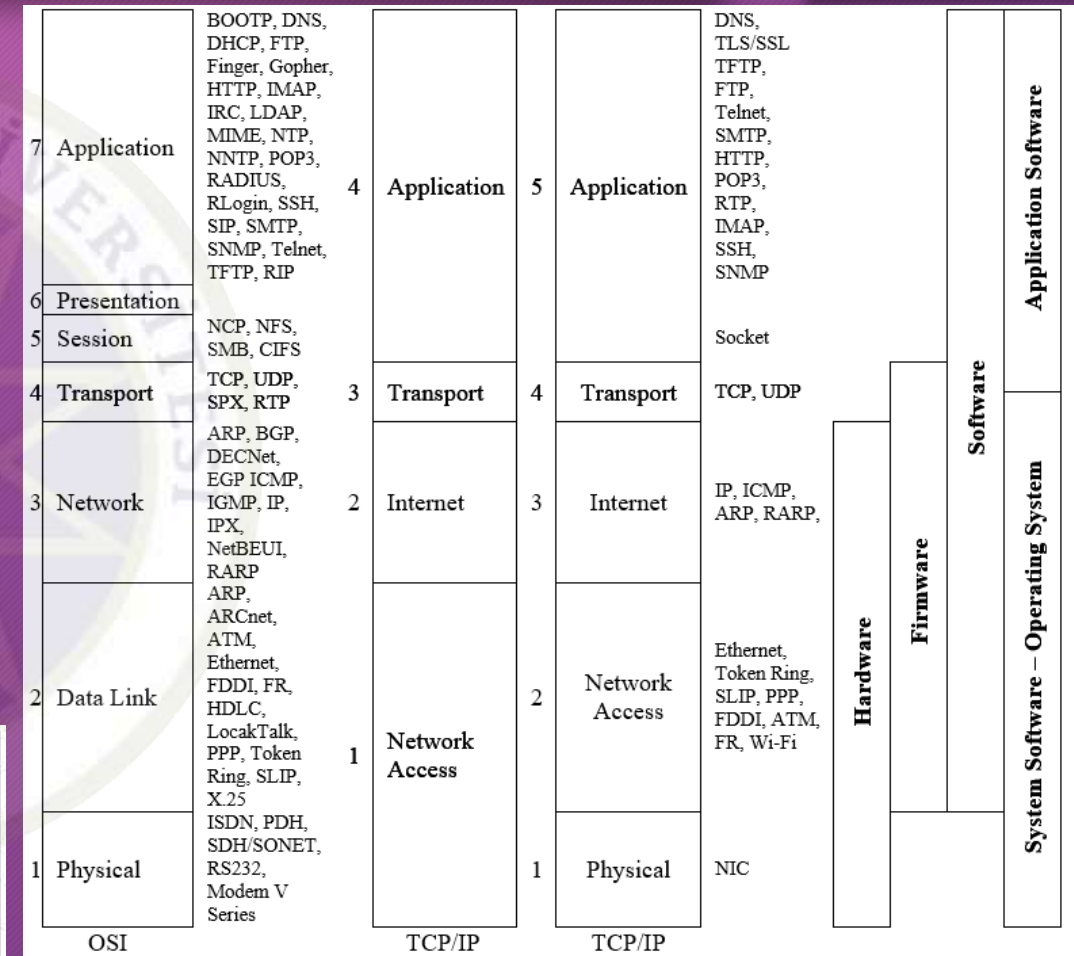
# Lecture Information Form - Weekly Subjects

Hafta	Tarih	Konular
1	20.02.2024	Introduction to Data Communication Standards Used on Data Communication, Architectural models
2	27.02.2024	OSI Reference Model , Layers and Their Functions, Signaling and Signal Encoding
3	05.03.2024	Parallel and Serial Transmission, Communication Media and Their Technical Specs., Multiplexing (TDM, FDM)
4	12.03.2024	Error Detection and Error Correction Techniques, Data Link Control Techniques, Flow Control
5	19.03.2024	Asynchronous and Synchronous Data Link Protocols (BSC, HDLC)
6	26.03.2024	LAN Technologies Continued, IEEE 802.4, 802.5, 802.11
7	02.04.2024	Connectionless and Connection Oriented Services, Switching
8	09.04.2024	Tatil - Ramazan Bayramı Arifesi
9	16.04.2024	1. Ara Sınav
10	23.04.2024	Tatil - 23 Nisan Ulusal Egemenlik ve Çocuk Bayramı
11	30.04.2024	Static and Dynamic Routing, Congestion in the Network Layer, Its Causes and Solutions
12	07.05.2024	IP (Internetworking Protocol), ICMP, BOOTP, DHCP
13	14.05.2024	2. Ara Sınav
14	21.05.2024	UDP (User Datagram Protocol), TCP (Transmisson Control Protocol)

# IP (Internetworking Protocol)

- TCP/IP: 4-5 katman
- Sockets
- Transport Layer
  - TCP (Transmission Control Protocol)
  - UDP (User Datagram Protocol)
- Package: Data with address info
- Datagram: Packet that complies with the structure defined by IP

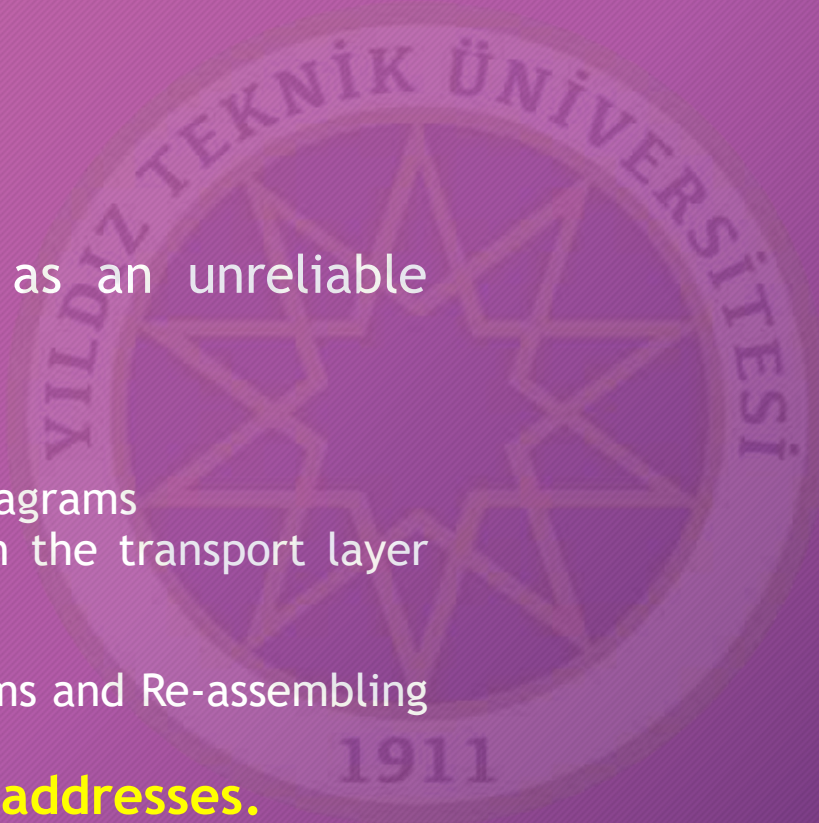
Port	Protocol Name
20,21	FTP (File Transfer Protocol)
23	Telnet
25	SMTP (Simple Mail Transfer Protocol)
80	HTTP (HyperText Transfer Protocol)
110	POP (Post Office Protocol)





# IP (Internetworking Protocol) - Internet Layer

- Connectionless Protocol
  - No ACK
  - No error handling
  - Left to other layers
- So, IP is also described as an unreliable protocol.
- Basic Tasks of IP
  - Defining datagrams
  - Adding address info to datagrams
  - Transferring data between the transport layer and network access layers
  - Routing of datagrams
  - Fragmentation of datagrams and Re-assembling of them.
- Packets consist of **4 bytes addresses**.
  - Ex: 193.140.4.1



# IP (Internetworking Protocol) - IPv4

- Host Addresses:

Address Class	Address – Representation in Binary System	Address Range	Mask	Number of Networks	Number of Hosts
A Class	0XXXXXXXXXXXXXXXXXXXXXXX	0.0.0.0-127.255.255.255	255.0.0.0	128	16.777.214
B Class	10XXXXXXXXXXXXXXXXXXXX	128.0.0.0-191.255.255.255	255.255.0.0	16.384	65.534
C Class	110XXXXX.XXXXXXXXXXXXXX	192.0.0.0-223.255.255.255	255.255.255.0	2.097.152	254
D Class	111XXXXX.XXXXXXXXXXXXXX	224.0.0.0-239.255.255.255			Multicast
E Class	111XXXXX.XXXXXXXXXXXXXX	240.0.0.0-255.255.255.255			Reserved

- 252 (2 subnet x 126 address/subnet)
- 248 (4 subnet x 62 address/subnet)
- 240 (8 subnet x 30 address/subnet)



# IP (Internetworking Protocol) - Special IP Addresses and NAT(Network Address Translation)

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- Special Purpose IP Address

- 192.168.0.0/16
  - (255.255.0.0)
- 10.0.0.0/8
- 172.16.0.0/12
- 172.31.0.0/12
- 192.168.0.0/24
- 192.168.255.0/24
- 127.0.0.0

- NAT(Network Address Translation)



# Thank you for your listening.

