

# Data Communication

## BLM3051



Furkan ÇAKMAK

### Lecture Information Form - Weekly Subjects

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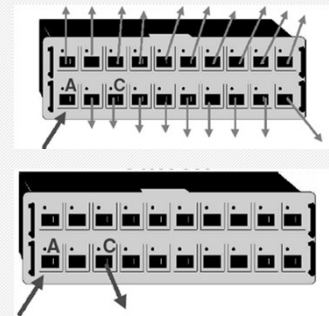
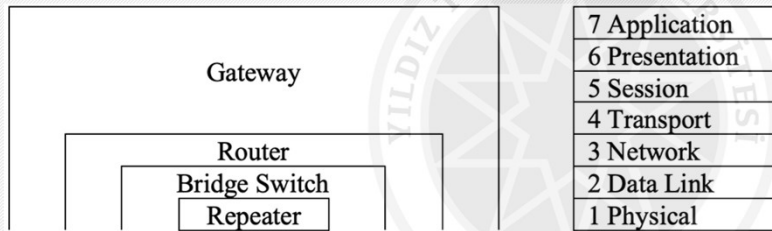
Week	Date	Subjects
1	04.10.2022	Introduction to Data Communication Standards Used on Data Communication, Architectural models
2	11.10.2022	OSI Reference Model , Layers and Their Functions
3	18.10.2022	Signaling and Signal Encoding
4	25.10.2022	Parallel and Serial Transmission, Communication Media and Their Technical Specs., Multiplexing (TDM, FDM)
5	01.11.2022	Error Detection and Error Correction Techniques
6	08.11.2022	Data Link Control Techniques, Flow Control
7	15.11.2022	Asynchronous and Synchronous Data Link Protocols (BSC, HDLC)
8	22.11.2022	1. Vize Haftası
9	29.11.2022	LAN Technologies Continued, IEEE 802.4, 802.5, 802.11
10	06.12.2022	Connectionless and Connection Oriented Services, Switching
11	13.12.2022	Communications Equipment's, TCP/IP Model, Security Issues
12	20.12.2022	Wide Area Networking Technologies (X.25, ISDN, FR, ATM, xDSL.)
13	27.12.2022	Research Presentation 1
14	03.01.2022	Research Presentation 2

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## Devices

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## VLAN

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- VLAN (Virtual LAN)
  - Port Based / Static / Layer 1 VLAN
  - MAC Based / Dynamic / Layer 2 VLAN
- Trunking
- Why VLAN?
  - Başarım
  - Sanal çalışma grupları oluşumu
  - Yönetimdeki kolaylık/sadelik
  - Maliyet
  - Güvenlik

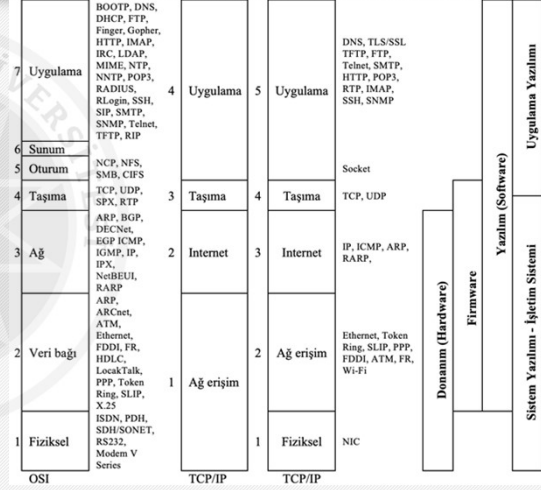
Furkan Çakmak

# TCP/IP Modeli

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- TCP (Transmission Control Protocol)
  - Connection Oriented
- UDP (User Datagram Protocol)
  - Connectioless



Furkan Çakmak

# TCP/IP Modeli (Con't)

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Adres Sınıfı	Adres – İkili sayı sistemindeki gösterimi	Adres aralığı	Maske	Ağ Sayısı	Konak Sayısı	Port Number	Protokol Name
A Sınıfı	0XXXXXXXXXXXXXXXXXXXXXXX	0.0.0.0-127.255.255.255	255.0.0.0	128	16.777.214	20,21	FTP (File Transfer Protocol)
B Sınıfı	10XXXXXXXXXXXXXXXXXXXXXX	128.0.0.0-191.255.255.255	255.255.0.0	16.384	65.534	23	Telnet
C Sınıfı	110XXXXXXXXXXXXXXXXXXXXX	192.0.0.0-223.255.255.255	255.255.255.0	2.097.152	254	25	SMTP (Simple Mail Transfer Protocol)
D Sınıfı	111XXXXXX	224.0.0.0-239.255.255.255			Multicast.	80	HTTP (HiperText Transfer Protocol)
E Sınıfı	1111XXXXX	240.0.0.0-255.255.255.255			Ayrılmıştır.	110	POP (Post Office Protocol)

- Subnet
  - 255.255.255.0 (11111111.11111111.11111111.00000000B)
  - 255.255.255.192 (11111111.11111111.11111111.11000000B)
- NAT (Network Address Translation)
- DNS (Domain Name System)

Furkan Çakmak

# Network Security

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- Ağ güvenliğinin önemli yönleri:
  - Veri bütünlüğü (data integrity)
  - Verinin kullanılabilirliği (data availability)
  - Veri mahremiyeti ve gizliliği: (data privacy and confidentiality)
- Güvenlik mekanizmaları
  - Şifreleme (Enchipherment)
  - Sayısal imza (Digital Signature)
  - Erişim kontrolü (Access Control)
  - Kimlik doğrulama (Authentication)
  - Trafik dolgusu (Traffic Padding)
  - Rotalama kontrolü (Routing Control)
  - Notere kaydettirme (Notarization)

Furkan Çakmak

Thank you for your listening.

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