

# Komunikasi Data

TK34304

# Diskripsi Singkat

Mata kuliah ini membahas tentang Komunikasi Data, konsep, komponen penunjang, hingga implementasinya di kehidupan sehari-hari. Selain itu juga membahas tentang model Jaringan yaitu OSI Model, serta protocol TCP/IP. Pada mata kuliah ini akan membahas lebih spesifik layer Fisik dan Data Link pada OSI Model. Mulai dari pengiriman data pada layer fisik berupa data analog maupun digital, modulasi analog dan digital, serta implementasinya. Pembahasan layer Datalink, mulai dari framing, Flow control hingga Error Control.

# DAFTAR PUSTAKA

- Behrouz A. Forouzan, Data Communication and Computer Networks, 5<sup>th</sup> Edition, Mc-Graw Hill, 2012.
- William Stalling, Data and Computer Communications, 10<sup>th</sup> Edition, Pearson, 2015.
- <https://digilib.unikom.ac.id/repo/sector/kuliah/materi/3806/>
- <https://kuliahonline.unikom.ac.id/?listmateri/&filterkelas=3806>

# Silabus

## 1. Introduction

- *Data Communication*
- *Networks*
- *The Internet*
- *Protocol and Standards*

## 2. Communication Protocol

- *The OSI Model*
- *Layers in the OSI Model*
- *TCP/IP Protocol Suite*
- *Addressing*

## 3. (3-4) Data and Signals

- *Analog and Digital*
- *Periodic Analog Signals*

- *Digital Signals*

- *Transmission Impairment*

- *Data Rate Limits*

- *Performance*

## 4. (5-6) Digital Transmissions

- *Digital to Digital Conversion*

- *Line Coding*
- *Line Coding Schemes*
- *Scrambling*

- *Analog to Digital Conversion*

- *Pulse Code Modulation*
- *Delta Modulation*

- *Transmission Modes*

# Silabus

## 7. Analog Transmission

- *Digital to Analog Transmission*

- *Amplitude Shift Keying*
- *Frequency Shift Keying*
- *Phase Shift Keying*
- *Quadrature Amplitude Modulation*

- *Analog to Analog Conversion*

- *Amplitude Modulation*
- *Frequency Modulation*
- *Phase Modulation*

- **UJIAN TENGAH SEMESTER**

# Silabus

## 9. Switching

- *Circuit Switch*
- *Packet Switch*

### • Multiplexing

- *Frequency Division Multiplexing*
- *Wavelength Division Multiplexing*
- *Synchronous Time Division Multiplexing*
- *Statistical Time Division Multiplexing*

## 10. Spread Spectrum

- *Frequency Hoping Spread Spectrum*
- *Direct Sequence Spread Spectrum*

## 11. Transmission Media

- *Guided Media*

- *Twisted Pair Cable*
- *Coaxial Cable*
- *Fiber Optic Cable*

### – Unguided Media

- *Radio Waves*
- *Microwaves*
- *InfraRed*

## 12. Multiple Access

- *Frequency Division Multiple Access*
- *Time Division Multiple Access*
- *Code Division Multiple Access*

## **(13-14) Data Link Layer (Error Detection and Error Correction)**

- *Types of Error*
- *Redundancy*
- *Error Detection*
  - *Vertical Redundancy Check*
  - *Longitudinal Redundancy Check*
  - *Cyclic Redundancy Check*
- *Error Correction*
  - *Hamming Code*
  - *Automatic Repeat Request (ARQ)*

## **15. Wired LANs: Ethernet**

- *IEEE Standard*
- *Standard Ethernet*
- *Fast Ethernet*
- *Gigabit Ethernet*
- **Wireless LANs**
  - *IEEE 802.11*
  - *Bluetooth*
- **UJIAN Akhir Semester**

# Nilai

- Kehadiran ( $\geq 80\%$ ) 10%
- Tugas, Kuis, Latihan (aktif di kelas) 30%
- UTS 30%
- UAS 30%

***Dengan maksimum tidak hadir = 3 kali***