

**SILABUS MATAKULIAH**  
**PROGRAM STUDI PENDIDIKAN TEKNIK ELEKTRO**  
**FAKULTAS TEKNIK**  
**UNIVERSITAS NEGERI YOGYAKARTA**

**Nama matakuliah** : **Komunikasi Data**  
**No. Kode / SKS** : /2  
**Semester** : **Genap**  
**Dosen** : **Dr. Samsul Hadi, M.T.**

**A. Deskripsi Matakuliah**

Matakuliah ini membahas komunikasi data antar komputer dengan protokol yang sangat populer saat ini, yaitu *Transmission Control Protocol/Internet Protocol* (TCP/IP). Materi tersebut mencakup: pengertian TCP/IP, komunikasi data, *Local Area Network* (LAN), *Wide Area Network* (WAN), hubungan antar-jaringan, pengamanan jaringan, fasilitas transmisi, dan konvergensi data dan suara.

**B. Standar Kompetensi**

Kompetensi lulusan yang diharapkan.

1. Mendeskripsikan konsep TCP/IP.
2. Mendeskripsikan komunikasi data.
3. Mengidentifikasi *Local Area Network* (LAN).
4. Mengidentifikasi *Wide Area Network* (WAN).
5. Membuat hubungan antar-jaringan.
6. Mengenal sistem pengamanan jaringan.
7. Mengidentifikasi fasilitas transisi data.
8. Memahami konvergensi data dan suara.

**C. Skema kerja**

| No. | Topik                                      | Uraian   | Sumber                    |
|-----|--|--|---------------------------|
| 1   | Lingkup TCP/IP                             | Internet, <i>Application Layer Protocol</i> , <i>User Datagram Protocol</i> , <i>Transmission Control Protocol</i> (TCP) | Carne, E. B., hal 1 - 11  |
| 2   | Koneksi dalam TCP/IP dan <i>IP Address</i> | Membuat koneksi, Internet Protokol, dan IP Address   | Carne, E. B., hal 12 - 25 |
| 3   | Peralatan Komunikasi, Panggilan Data, dan  | Peralatan Komunikasi, Panggilan Data, dan Model  | Carne, E. B., hal 27 - 36 |

|    |   |  |                             |
|----|---|--|-----------------------------|
|    | Model <i>Open Systems Interconnection</i> | <i>Open Systems Interconnection</i>  |                             |
| 4  | Model Internet                            | <i>Application Layer, Transport Layer, Internet Layer, Network Interface Layer</i>           | Carne, E. B., hal 37 - 41   |
| 5  | Jaringan Lokal (1)                        | <i>Classic Ethernet, IEEE 802.3 (Ethernet) LAN, dan Konfigurasi</i>                          | Carne, E. B., hal 43 - 48   |
| 6  | Jaringan Lokal (2)                        | <i>Token-Ring LAN, Fiber Distributed Data Interface, dan Bit Ordering</i>                    | Carne, E. B., hal 52 - 57   |
| 7  | <i>Wide Area Network</i>                  | <i>Point-to-Point Link, Nonbroadcast Multiple Access Link, dan Kualitas Layanan</i>          | Carne, E. B., hal 59 - 78   |
| 8  | <b>Ujian Tengah Semester</b>              |  |                             |
| 10 | Membuat Hubungan Antar-jaringan (1)       | <i>Repeater, Bridge, Router, dan Gateway; Bridging, Routing.</i>                             | Carne, E. B., hal 81 - 96   |
| 11 | Membuat Hubungan Antar-jaringan (2)       | <i>Virtual LAN, Multiprotocol Label Switching</i>  | Carne, E. B., hal 96 - 102  |
| 12 | Pengamanan Jaringan (1)                   | <i>Network Address Translation, Proxies, Tunnels, Encryption, Decryption, Authentication</i> | Carne, E. B., hal 105 - 113 |
| 13 | Pengamanan Jaringan (2)                   | <i>IP Security, Firewall, Jenis-jenis VPN, Dasar Koneksi</i>                                 | Carne, E. B., hal 114 - 119 |
| 14 | Fasilitas Transmisi Data                  | Kabel UTP, Kabel Optik, Radio  | Carne, E. B., hal 121 - 140 |
| 15 | Konvergensi Data dan Suara                | <i>Local Loop, Modems dan Jaringan Digital, TV Kabel, Voice over IP (VoIP)</i>               | Carne, E. B., hal 145 - 158 |
| 16 | <b>Ujian Akhir Semester</b>               |  |                             |

#### D. Penilaian

|                       |       |
|-----------------------|-------|
| Tugas mingguan 6 buah | : 25  |
| Tugas akhir           | : 15  |
| Ujian sisipan         | : 25  |
| Ujian akhir           | : 30  |
| Partisipasi kelas     | : 5   |
| -----                 |       |
| Jumlah                | : 100 |

## **E. Buku Bacaan**

### 1. Utama

Carne, E. B. (2004). *A professional's guide to data communication in a TCP/IP world*. Boston: Artech House, Inc.

### 2. Pendukung

Fitzgerald, J. & Dennis, A. (2009). *Business data communications and networking*. New York: John Wiley & Sons, Inc.



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*A Professional's Guide to*  
**DATA COMMUNICATION**  
*in a* **TCP/IP WORLD**

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E. Bryan Carne

TLFeBOOK

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E. Bryan Carne



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COMMUNICATIONS  
& NETWORKING**

TENTH EDITION

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