EE3009 Data Communications and Networking

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Course materials in Canvas

Aims of the course:

- understand the architecture of computer networks
- understand the principles of data communication

Syllabus:

1 Computer networks and Internet

- network components
- Internet architecture
- performance measure
- protocol
- history

2 Data transmission

- digital representation
- digital and analog transmission
- asynchronous and synchronous communications
- error detection and correction
- transmission media

3 Data link layer

- reliable data transfer
- data link control

4 Medium access control

- multiple access
- random access
- scheduling

5 Local area network

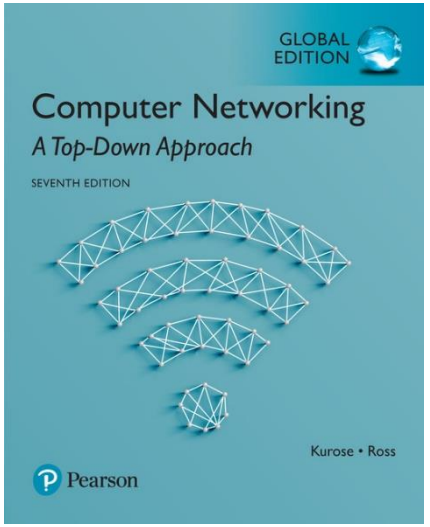
- Ethernet
- VLAN
- wireless LAN

6 Network layer

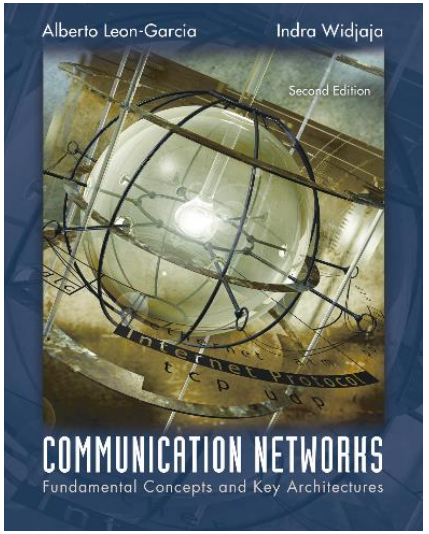
- router
- internet protocol

References

J. F. Kurose and K. W. Ross, Computer Networking: A Top-Down Approach, 7th ed., Pearson, 2016.



A. Leon-Garcia and I. Widjaja, Communication Networks: Fundamental Concepts and Key Architectures, 2nd ed., McGraw-Hill, 2004.



Precursor:
EE2000 Logic Circuit Design

This is a first course in computer networking. It only assumes you have basic knowledge in algebra, calculus, and probability.

Pre-requisite of:

EE3315 Internet Technology

EE4014 Business Data Communication Networks

EE4017 Internet Finance

EE4221 Cloud Computing Systems

EE4316 Mobile Data Networks

Pre-cursor of:

EE3301 Optimization Methods for Engineering

EE4212 Cryptography and Information Theory

EE4222 Digital Forensics

Course Intended Learning Outcomes (CILO)

1. Describe the architecture of computer networks and explain how internetworking works
2. Explain how information can be represented and sent via communication interfaces and links
3. Explain how reliable data transfer can be achieved in the data link layer
4. Explain the principles and evaluate the performance of medium access control

Assessment

Continuous Assessment: **50%**

Examination: **50%**
(2-hour)

To pass the course, students are required to achieve at least
30% in Continuous Assessment
30% in the Examination
and **75%** laboratory attendance

Continuous Assessment:

Laboratory (4 sessions): 7%
On-line test of CCNA R&S curriculum: 3%
In-class exercises: 10%
Quiz (week 6): 15%
Test (week 11): 15%