Electrical Engineering & Computer Science
University of Kansas

EECS 663
Introduction to Communications Networks
Tuesday and Thursday, 5:30 PM to 7:00 PM
110 Budig Hall & Room 100, Edwards Campus

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Office Hours: Thursday, 1:30 - 2:30 PM, Nichols Hall, otherwise by appointment

Topics

- Information Technology: Potential, Choices, and Problems (Notes)
- Evolution of telecommunication networks (Notes)
- Network services (Chapter 1 & 7)
- Network based applications (Chapter 1 & 7)
- Network traffic characterization (Notes)
  - Voice & Video
    - Micro-level, characteristics of voice signals
    - Macro-level, characteristics of voice traffic
  - Data
  - Video
  - Typical peak rates for network traffic
- Network impairments (Notes)
- Network technologies (Chapter 1 & 2)
  - Circuit switching
  - Message switching
  - Packet switching
  - Virtual Circuit Switching
- Network standards and open systems (Chapter 1)
- Network architectures and the OSI reference model (Chapter 1)
- Introduction to network performance evaluation (Notes)
  - Basic queuing theory
  - Introduction to network simulation
- Telephone systems, switch architectures and signaling (Chapter 2)
- ISDN, SONET, and Broadband ISDN (Chapter 2, 3, 5, & 6)
  - B-ISDN
  - ATM
  - SONET
- Media Access Control (Chapter 4)
  - Media Access Control (General)

    - Polling techniques
    - Random access techniques
    - Collision free
    - Packet radio
    - Satellite networks
    - Standards
    - LAN comparison
        - Ethernet
        - Token Ring (IEEE 802.5)
        - Token Bus (IEEE 802.4)
        - FDDI
        - DQDB (IEEE 802.6)
        - ATM
- Data link control (Chapter 3)
    - Introduction to data link control, framing
    - Introduction to error control coding
    - Error and flow Control
        - Simple DLC protocol
        - Advanced DLC protocol
    - DLC protocol efficiency
    - Rate control
    - Standard DLC
- High layer protocols (Chapter 5 & 6)
    - Service primitives
    - Network addressing
    - IP
    - TCP
    - Routing and congestion control
    - Frame relay
- Network security (Chapter 7)
- Introduction to optical networking (Notes)

Texts/References

- Notes
- Andrew S. Tanenbaum, Computer Networks, Prentice Hall, Third Edition, 1996 (required)
- J. Walrand and P. Varaiya, High-Preformance Communication Networks,Morgan Kaufman Publishers, 1996 (reference)
- D. Comer, Computer Networks and Internets, Prentice Hall, 1997 (reference)
- L. Peterson and B. Davie, Computer Networks: A Systems Approach, Morgan Kaufman Publishers, 1996 (reference)

Anticipated Schedule

Date	Topic	Venue
August 19	Course Organization	Lawrence Campus
August 24	Information Technology: Potential, Choices, and Problems	Lawrence Campus
August 26	Evolution of telecommunication networks	Lawrence Campus
August 31	Network services	Lawrence Campus
September 2	Network based applications	Edwards Campus
September 7	Network traffic characterization	Lawrence Campus
September 9	Network impairments	Edwards Campus
September 14	Network technologies	Edwards Campus
September 16	Network technologies	Lawrence Campus
September 21	Network standards and open systems	Lawrence Campus
September 23	Exam	-
September 28	Network architectures and the OSI reference model	Lawrence Campus
September 30	Introduction to network performance evaluation	Lawrence Campus
October 5	Introduction to network performance evaluation	Lawrence Campus
October 7	Telephone systems, switch architectures and signaling	Lawrence Campus
October 12	ISDN, SONET, & Broadband ISDN	Lawrence Campus
October 14	ISDN, SONET, & Broadband ISDN	Lawrence Campus
October 19	Media Access Control	Edwards Campus
October 21	Media Access Control	Lawrence Campus
October 26	Media Access Control	Edwards Campus
October 28	Data link control	-
November 2	Data link control	Lawrence Campus
November 4	High layer protocols	Lawrence Campus
November 9	Service primitives	Edwards Campus
November 11	Network addressing	Lawrence Campus
November 16	IP	Edwards Campus
November 18	Exam	Lawrence Campus
November 23	TCP	Lawrence Campus
November 25	Thanksgiving Break	-
November 30	Routing and congestion control	Lawrence Campus
December 2	Frame relay	Lawrence Campus
December 7	Network security	Lawrence Campus
-	No Final Exam	-

Note that this schedule may be modified in order to adapt to currently unforeseen circumstances.

Grading Policy

The class will be graded competitively according to the percentages listed below. Each assignment within a category will be weighted equally. The course grade thresholds (that is, the numerical grade required to get a particular letter grade) will be set by the instructor to reflect the relative performance of the students. Class attendance is expected unless otherwise indicated.

Exam 1	20%
Exam 2	20%
Term Paper	30%
Simulation Project	20%
Homework, Miscellaneous	10%

Note: failure to complete the "Term Paper" or "Simulation Project" portions of the course will result in a grade of F for the course.

No credit will be given for assignments turned in late, except under extraordinary circumstances and with adequate prior notification of the instructor. In particular, no late homework will be accepted.

Only under very extreme conditions will make-up tests be given. The instructor must be notified before you miss an exam, otherwise you will receive a grade of zero.

An appeal on grades for individual assignments must be within 7 days of the date the assignment is returned.

Further details of the project grading procedure may be announced in class or via e-mail as required.