COE 353 :Fundamentals of Computer Communication

Fall 2023 (231);   Day/Time: MW 11:00 AM-12:15 PM ;Location: Bldg 76-1128

Instructor: Dr. Sadiq M. Sait
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Office Hours: By appointment & MW 12:15 PM -1:15 PM

Course Description: Digital communications fundamentals. Voice and data transmission equipment. Communications channels. Data coding and modulation. Multiplexing. Modems. Transmission media. Data transmission codes and protocols. Software packages. Data networks. Planning and design of communication networks.

Note: Not to be taken for credit with COE 241. Not open to COE students.

Prerequisites: Junior Standing

Textbook: "Business Data Communications and Networking," Jerry FitzGerald, Alan Dennis, Alexandra Durcikova. 12th Edition, John Wiley & Sons, 2015.

List of Topics:

- Chapter 1   Introduction
- Chapter 2   Application Layer
- Chapter 3   Physical Layer
- Chapter 4   Data Link Layer
- Chapter 5   Network and Transport Layers
- Chapter 6   Network Design
- Chapter 7   Wired and Wireless Local Area Networks
- Chapter 8   Backbone Networks
- Chapter 9   Wide Area Networks
- Chapter 10   The Internet
- Chapter 11   Network Security
- Chapter 12   Network Management

Grading

- Assignments   0%   (Solutions will be provided)
- Quizzes   20%
- Exam I   25% (After Week 5)
- Exam II   25% (After Week 11)
- Final Exam   30%

Course Objectives:

- Provide a basic understanding of the technical and management aspects of business data communications and networking.
- Illustrate the business impact of data communications technologies on organizational operations and productivity.
- Familiarize the student with the basic taxonomy and terminology of the computer networking area.
- Build an understanding of the fundamental concepts of computer networking.

Course Learning Outcomes:

1. Knowledge and Understanding
   1.1 Explain concepts and applications of data communication and networking.
   1.2 Enumerate the layers of standard network models (OSI and TCP/IP).
   1.3 Discuss the basic functions of each network layer and its basic protocols.
   1.4 Identify different computer network technologies.
   1.5 Discuss network management issues, including security aspects.
2. Skills
   2.1 Use various tools for simple networking administration and analysis.

General Course Policies

- *Course Website & Participation*: Students must periodically check Blackboard and download course material as needed. Several resources will be posted. Keys to exams are generally discussed during class as time permits, but solutions will not be posted.

- *Attendance*: Regular attendance is a university requirement; hence attendance will be taken at the middle of each lecture.
  - In a two lectures/week format:
    - Missing more than **6 lectures** will result in a <u>DN grade without warning</u>.
    - The first two absences are not penalized. Then, each absence will result in a penalty of 0.75%
    - Two late counts as one absent and will result in a penalty of 0.75%
  - Official excuses must be presented to the instructor no later than one week after returning to classes.
- *No makeup for tests or quizzes will be given.*
- *Re-grading policy*: If you have a complaint about any of your grades, discuss it with the instructor no later than a week from distributing the grades (except for the final). Only legitimate concerns on grading should be discussed.
- *Office Hours*: Students are encouraged to visit faculty during office hours to clarify any part of the material that is not clear.
- *Academic honesty*: Students are expected to abide by all the university regulations on academic honesty. **Cheating will be reported to the Department Chairman**.. <u>**Cheating in whatever form will result in an F grade.**</u>
- Absolute academic integrity is expected of every KFUPM student in all academic undertakings. Most essential values in academia are grounded on the concept of honesty with respect to the intellectual efforts of oneself and others. While both students and faculty of KFUPM assume the responsibility of maintaining and furthering these values, this memo is concerned specifically with the conduct of students. KFUPM has a zero-tolerance policy towards cheating, plagiarism, or any other violation of the Code of Honesty.
  - Examples of Violations of the Code of Academic Honesty
    - Knowingly representing the work of others as one's own.
    - Using, obtaining, or providing unauthorized assistance on examinations, quizzes, assignments, or any other academic work.
    - Fabricating results in support of laboratory or fieldwork.
  - Examinations.
    - During in-class examinations, no student may use, give, or receive any assistance or information not given in the examination or by the proctor.
    - No student may take an examination for another student. The student is responsible for understanding the conditions and rules under which the examination will be taken.
    - Dishonesty or cheating in examinations is defined as using inappropriate or unauthorized materials, information, or study aids in an exam. Unless the instructor directs otherwise, an examination is assumed to be solely a student's own work.
    - No communication is allowed among students either through voice, written, electronic, or any other form of transmission, nor are students permitted to consult books, papers, study aids, or notes without explicit permission of the course instructor.
    - Violating exam rules and regulations by bringing smart electronic devices (such as mobile phones, smart watches, earbuds, etc.) to the exam venue is considered a cheating attempt.