1. Instructor
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Office hours: Tues. 14:00 – 15:00, Wed. 14:00 – 15:30, Thu. 14:00 – 15:00

2. Catalog Description
A course that outlines data communications; wide area networks; circuit and packet switching; routing; congestion control; local area networks; communications architecture and protocols; internetworking.

3. Time and Place
• TR, 11:00 – 12:20, Bechtel 403

4. Prerequisites
• By course:
  • STAT 230: Introduction to Probability and Random Variables
  • EECE 330: Data Structures and Algorithms
• By topic:
  • Programming languages
  • Basic understanding of probability theory
  • Basic understanding of the internal operation of computers

5. Textbook

6. Reference Books
7. **Course Topics**
   - Chapter 1: Computer Networks and the Internet
   - Chapter 2: Application Layer
   - Chapter 3: Transport Layer
   - Chapter 4: The Network Layer
   - Chapter 5: The Link Layer and Local Area Networks

8. **Class/Laboratory Schedule**
   Lecture: 3 hours/week

9. **Course Objectives**
   The objectives of this course are to give students:
   1. An understanding of the basic principles of computer networking.
   2. An overview of the main technologies used in computer networks.
   3. An overview of internetworking principles and how the Internet protocols, routing, and applications operate.
   4. The basic background in computer networks that will allow them to practice in this field, and that will form the foundation for more advanced courses in networking.
   5. The basic skills needed to write network applications and an introduction to socket programming.

10. **Learning Outcomes**
   At the end of the course, students:
   1. Understand the basic principles of computer networking such as network requirements and performance.
   2. Understand network architectures, the OSI reference model, framing, and encapsulation.
   3. Understand the application-layer protocols of applications such as DNS, Email, File Transfer, and Web.
   4. Have the basic skills needed to write network applications using client-server socket programming.
   5. Understand circuit switching and packet switching.
   6. Understand the operation of the transport layer protocols UDP and TCP.
   7. Understand the basic principles of error, flow, and congestion control.
   8. Understand internetworking principles, IP and ICMP, and IPv6 as compared to IPv4.
   9. Understand how IP addressing is done including CIDR and NAT.
   10. Understand routing principles and algorithms, such as distance vector and link state.
   11. Are aware of the routing protocols used on the Internet such as RIP, OSPF, and BGP.
   12. Understand how access to shared medium is accomplished using CSMA (Carrier Sense Multiple Access).
   13. Are aware of local area network technologies such as Ethernet, Token Ring, and Wireless LANs.
11. Student Assessment and Grading

The final course grade will be based on attendance, a midterm exam, a final exam, assignments, short quizzes, and a course project.

<table>
<thead>
<tr>
<th>Participation</th>
<th>5%</th>
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<tbody>
<tr>
<td>Midterm Exam</td>
<td>30%</td>
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<tr>
<td>Final Exam</td>
<td>35%</td>
</tr>
<tr>
<td>Assignments and Quizzes</td>
<td>20%</td>
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<tr>
<td>Project</td>
<td>10%</td>
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1. **Participation**: This includes class attendance. You are expected to attend all classes. You are responsible for the work done and for the announcements made during your absence. The participation grade will be based on the statistics collected from taking the class attendance. The class attendance need not always be taken. You get 5 for less than two absences, 4 for two absences, 3 for 3 absences, 2 for 4 absences, 1 for 5 absences, and 0 for more than 5 absences. In case you have a valid excuse for not attending class, you have to send the instructor an email before class to explain your case. Students who miss more than one fifth of the lectures in the first ten weeks of the semester will be dropped from the course.

2. **Examinations**: The midterm and final exams are closed book subjective-type exams.
   - The midterm exam will be held on Monday April 14, 2008 at 18:30.
   - The final exam will be held during the final examination period in June 2008.

3. **Assignments and Quizzes**: There will be around six homework assignments throughout the semester.
   - Assignments are due at the start of the class.
   - Late assignments will not be accepted.
   - Assignments should be done individually. You must hand-write your own solution independently. Copying will be treated seriously and will result in 0 grade to all involved parties. Moreover, all involved students will be reported to the Dean’s office.
   - You have one week after grades are announced to request any review of the correction of your assignment.
   - Short quizzes will be given in class covering material included in the assignments.

4. **Project**: The course project will be done in groups of two students and will involve network programming under Solaris, Linux, or a similar operating system. The project might be divided into several tasks distributed throughout the semester.