CpE 5410: Digital Network Design  
Fall 2015 Syllabus  
Revised April 7, 2015

Class Time and Venue:  
MWF 12:00 to 12:50 pm, in 213 Butler-Carlton Hall (Civil Engineering)

Instructor  
Dr. Sahra Sedigh Sarvestani  
Email: sedighs@mst.edu (best way of reaching me)  
Office: 135 Emerson Hall  
Phone: (573) 341-7505  
Administrative assistant: Ms. Carol Lay, (573) 341-4509, layc@mst.edu, 143 Emerson Hall

Office hours: TBA.

Prerequisite Course  
CpE 3150; or as determined by the instructor, competence in the basics of computer hardware.

Prerequisites by Topic:  
1. Familiarity with elementary probability theory  
2. Familiarity with data structures and algorithms  
3. Mastery of the fundamentals of computer organization  
4. Familiarity with processor communications and I/O  
5. Familiarity with computer programming

Required Text  

Available for purchase as an ebook at:  

Course Web Site  
PowerPoint slides from each class, course handout materials and homework assignments will be available on the Missouri S&T Blackboard system at http://blackboard.mst.edu.

Course Objectives  
The objective of this course is to introduce you to the design of computer networks, with emphasis on network architecture, protocols and standards, performance considerations, and network technologies.
By the end of the course, you should be able to:

- Describe an overview of communication networks, explaining the general principles governing the transport, network, medium access control, data link, and physical layers.
- Describe how these layers operate and interact, and how the major functions of each layer are affected by network speed and user requirements.
- Investigate the limitations of current networks such as the Internet, Ethernet, ATM, and wireless LANs.
- Evaluate the performance of a network, and suggest improvements employing new technologies.

**Tentative Course Schedule**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Duration/Date</th>
<th>Reading Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>1 week</td>
<td>Chapter 1</td>
</tr>
<tr>
<td>Physical Layer</td>
<td>3 weeks</td>
<td>Chapter 2</td>
</tr>
<tr>
<td>Data Link Layer</td>
<td>2 weeks</td>
<td>Chapter 3 (all except 3.5)</td>
</tr>
<tr>
<td><strong>Midterm Exam</strong></td>
<td><strong>TBA</strong></td>
<td><strong>TBD</strong></td>
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<tr>
<td>Medium Access Control Sublayer</td>
<td>3.5 weeks</td>
<td>Chapter 4 (all except 4.6)</td>
</tr>
<tr>
<td>Network Layer</td>
<td>2.5 weeks</td>
<td>Chapter 5 (5.1-5.5)</td>
</tr>
<tr>
<td>Internet Addressing and Transport Protocols</td>
<td>1.5 weeks</td>
<td>Section 5.6, Chapter 6</td>
</tr>
<tr>
<td><strong>Final Exam</strong></td>
<td><strong>As announced by Registrar</strong></td>
<td><strong>Comprehensive</strong></td>
</tr>
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**Class Attendance**

On-campus students are expected to attend all classes. If you must miss a class, you are responsible for procuring any information, handouts, or announcements that you missed. Attendance will be recorded for randomly selected class sessions.

The Academic Alert System at [http://academicalert.mst.edu](http://academicalert.mst.edu) will be utilized to provide early warning of attendance or performance problems that can lead to being dropped.

**Homework**

- Lecture notes for each class will be posted on Blackboard prior to presentation in class. You are expected to download these notes and bring them to class on the day the lecture is to be presented.
- Homework problems will be posted on Blackboard. You will have approximately six assignments, not including lab exercises.
- Assignments are due at the beginning of class.
- Late homework will receive 50% of the possible score if submitted within 24 hours of the time it is due. Late assignments will not be accepted after 24 hours of the original deadline.
- While you are expected to complete all homework assignments, only a subset of the problems or assignments may be graded.
You may work together to solve the homework problems, but each student should prepare the final submission individually. Copying from anyone else's solution is detrimental to your integrity and will deprive you of the opportunity to learn the material and to assess your knowledge. If submissions from two students are found to be effectively identical, both students will receive zero as the grade for the quiz, assignment, or exam in question. If you cannot explain your answer to a particular question at a later date, no credit will be given, even if the solution originally submitted was correct.

**Quizzes**
Unannounced quizzes will be given on a regular basis. Off-campus students should submit each quiz within 48 hours of the class in which it is given. A score of zero will be given for any missed quizzes. No makeup quizzes will be given.

**Examinations**
The class will have two exams, the second of which is a comprehensive final. Exams will cover material from the lectures, text, and homework, with slight emphasis on homework.

*Unless there is an excuse deemed acceptable by me, failure to appear at an exam will result in a grade of zero for on-campus students.* Makeup exams will be scheduled on a case-by-case basis, based on evidence of scheduling conflicts or other extenuating circumstances.

**Special Accommodations for Students with Documented Disabilities**
If you have a documented disability and anticipate needing accommodations in this course, you are strongly encouraged to meet with me early in the semester. You will need to request that the Disability Support Services staff send a letter to me verifying your disability and specifying the accommodation you will need. Disability Support Services is located in 204 Norwood Hall. Their phone number is 341-4211 and their email is dss@mst.edu.

Requests for special accommodations for an exam should be made at least two weeks in advance.

**Academic Honesty**
We expect every member of the Missouri S&T community to practice honorable and ethical behavior inside and outside of the classroom. Any action that might unfairly improve a student’s score on homework, quizzes, or examinations will be considered cheating, and will not be tolerated. A few examples of cheating are:

- Submitting homework that is not your own work. While we encourage you to work together, your work should not be a copy of any other student’s work.
- Sharing results or notes during quizzes or exams.
- Bringing notes, in hard copy or electronic form, to an exam where they are not allowed. This includes improper use of a programmable calculator.
- Requesting a regrade on an exam or homework problem that has been altered after grading.

Page 30 of the Missouri S&T Student Academic Regulations Handbook (at [http://registrar.mst.edu/academicregs/index.html](http://registrar.mst.edu/academicregs/index.html)) describes the student standard of conduct and
offers descriptions of academic dishonesty, including cheating, plagiarism or sabotage. If you are unsure of whether a certain act is considered dishonest, please ask me.

Cheating on assignments or exams can result in a zero score for the assignment or exam, or a reduced or failing grade for the course, at the discretion of the instructor. Instances of cheating will be reported to university administrative officials for further action and possible suspension or expulsion from the university.

Grading
Class participation (attendance, interaction, improvement): 2%
Quizzes: 23%
Homework assignments: 15%
Midterm exam: 25%
Final exam: 35%

Partial Credit and Regrades
Homework or exam problems are rarely graded as all-or-none. Emphasis is placed first upon the understanding of the concept, followed by proper application of the concepts, and lastly on the correct answer. Show your work. You will not be severely penalized for minor mistakes, but answers without explanations may not be given full credit.

If you feel you deserve more credit on a problem than you were given, you may submit a written (preferably email) request for additional credit, clearly stating why you believe you deserve additional credit. Regrade requests will not be accepted until 24 hours after an assignment or exam is returned, and should be in the form of a memo or letter used when communicating between professionals on the job. Requests should be submitted within five days of receiving the assignment or exam. No such requests will be honored after the deadline has passed.

Emergency Exits
Egress maps for all areas of instruction on campus are available on the web at http://registrar.mst.edu/links/egress.html. Students are encouraged to review this site and be aware of the emergency exit signs near their classrooms.

Communication
Email is the preferred mode of communication for this class. You are expected to check your email at least once a day. You are also expected to monitor Blackboard regularly for announcements or other course material, in particular lecture notes and assignments.

Feedback
Your feedback is critical to my success as an instructor. In addition to the end-of-semester evaluations required by the department, I will periodically solicit your feedback, which can be provided anonymously. Your comments are appreciated and welcome throughout the semester.

ANY INFORMATION PROVIDED BY THE INSTRUCTOR ON LATER DATES, IN WRITTEN OR ORAL FORM, WILL SUPERSEDE THIS DOCUMENT.