

San Jose State University
CmpE/SE 148
Instructor: Dr. Rod Fatoohi

Computer Engineering Department
Computer Networks I
Spring 2014

Time & Location

Tuesday & Thursday 1:30 – 2:45 pm, ENG 331

Contact Information

Office Hours: Tuesday 5 – 6 pm & Thursday 3 – 4 pm, or by appointment (electronically or in-person).

Office: Eng 273.

Phone: (408) 924-4059.

Email: rod.fatoohi@sjsu.edu

Class Materials

Textbook

Computer Networks, 5th Ed., 2011, Tanenbaum & Wetherall, ISBN: 978-0-13-212695-3.

References

- Computer Networking: A Top-Down Approach Featuring the Internet, 6th Ed., 2013, Kurose & Ross, ISBN: 978-0-13-285620-1.
- Computer Networks: A Systems Approach, 5th Ed., 2011, Peterson & Davie, ISBN: 978-0-12-385059-1.
- Data and Computer Communications, 9th Ed., 2011, Stallings, ISBN: 978-0-13-139205-2
- Computer Networks and Internets, 5th Ed., 2009, Comer, ISBN: 978-0-13-606698-4.

Class eLearning Site

- Class website: <https://sjsu.instructure.com>
- Students are required to check the class website regularly (at least twice a week).
- Reports should be uploaded to the class website by the deadline posted. A deduction of 10% of the maximum allowed grade per week is enforced (even for minutes after the deadline) until the assignment is graded and posted (by that time the assignment receives zero grade).
- The format of the reports should be acceptable to turnitin (such as WORD and PDF); otherwise the reports will be considered late and be penalized as above.

Prerequisite

CMPE 050 or CS 046B, and ISE 130 or Math 161A.

Students need to submit copy of their transcript to verify course prerequisites.

Exam & Grading

13% Pop Quizzes (closed book and notes)

17% Project

30% Midterm: Tuesday, March 11 at 1:30 pm.

40% Final: Monday, May 19 at 12:15 pm.

Midterm & Final exams are open book & notes

All exams and quizzes are multiple choices; form T&E 0200 is required for all of them

No laptops allowed in the exams.

No make-ups exams except in case of verifiable emergency circumstances; once you are back in school, you need to take the exam within a week assuming that you provide documents to justify your absent and it is for a short time.

A+ : > 94	A : 90 - 94	A- : 85 - 89
B+ : 80 - 84	B : 75 - 79	B- : 70 - 74
C+ : 65 - 69	C : 60 - 64	C- : 55 - 59
D+ : 50 - 54	D : 45 - 49	D- : 40 - 44
F : < 40	(0.5 - 0.9) = 1	(0.1 - 0.4) = 0

Success in this course is based on the expectation that students will spend, for each unit of credit, a minimum of forty-five hours over the length of the course (normally 3 hours per unit per week with 1 of the hours used for lecture) for instruction or preparation/studying or course related activities including but not limited to internships, labs, clinical practica. Other course structures will have equivalent workload expectations as described in the syllabus.

Academic integrity statement (from Office of Judicial Affairs)

Your own commitment to learning, as evidenced by your enrollment at San José State University and the University's Academic Integrity Policy requires you to be honest in all your academic course work. Faculty members are required to report all infractions to the Office of Student Conduct and Ethical Development. The policy on academic integrity can be found at: <http://www2.sjsu.edu/senate/S07-2.pdf>

Students need to sign the Honesty Pledge form (required by the department),

<http://www.engr.sjsu.edu/fatoohi/honestyPledge.pdf>

Campus policy in compliance with the Americans with Disabilities Act

If you need course adaptations or accommodations because of a disability, or if you need special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see me during office hours. Presidential Directive 97-03

requires that students with disabilities register with AEC (Accessible Education Center) to establish a record of their disability.

SJSU Writing Center

The SJSU Writing Center is located in Room 126 in Clark Hall. It is staffed by professional instructors and upper-division or graduate-level writing specialists from each of the seven SJSU colleges. Our writing specialists have met a rigorous GPA requirement, and they are well trained to assist all students at all levels within all disciplines to become better writers. [The Writing Center website is located at http://www.sjsu.edu/writingcenter/about/staff/](http://www.sjsu.edu/writingcenter/about/staff/).

Dropping and Adding

Students are responsible for understanding the policies and procedures about add/drop, grade forgiveness, etc. Refer to the current semester's Catalog Policies section at <http://info.sjsu.edu/static/catalog/policies.html> . Add/drop deadlines can be found on the [current academic calendar](#) web page. The Late Drop Policy is available at <http://www.sjsu.edu/aars/policies/latedrops/policy/>. Students should be aware of the current deadlines and penalties for dropping classes. Information about the latest changes and news is available at the [Advising Hub](#).

Classroom Protocol

- Students should attend all meetings of the class.
- Students are responsible for lecture, book sections, project presentations, and any instructions given in the class.
- Avoid disturbing the class: turn-off cell phones (or put them on vibrate mode), no text messaging in the class or in the exams, no entering the class late or leaving early.
- Web browsing during the class is prohibited. Students are allowed to use computers for course related activities only. These activities include taking notes on the lecture underway, following the lecture on Web-based slides that the instructor has posted, and finding Web sites to which the instructor directs students at the time of the lecture.
- Students causing disruption in the class for other activities will be asked to leave the class and will be referred to the Judicial Affairs Officer of the University for disrupting the class after repeated offenses.

Collaboration Policy

- You can collaborate with your group members only. No collaboration or seeking information outside the group is allowed.
- Assisting any student outside your group is prohibited.
- Use of any material from the Internet or any other source without permission (even if you cite the reference) is prohibited and would violate the Academic Honesty Pledge.

- Individual contribution should be stated in any submitted assignment and grading could be based on contribution. Otherwise, equal contributions and responsibilities are assumed.

H.W.

- Problems from textbook; assigned and discussed later but not collected or graded.

Project

Write a report about a new hardware and/or software networking technology:

- Students need to form groups of two or three members to work on a single project.
- One report per group: 3500 - 5000 words (10 to 15 pages)
- Most material (>50%) not covered in textbook; 90% not covered in the class or notes.
- Students should write the report in their own words
- Sources: recent papers, articles, standards' documents.
- Topic: chosen by students and approved by instructor; otherwise assigned by instructor.
- Presentation is required for all group members at the allocated time.
- All participants are responsible for the project.
- Proposal (one page) Deadline: April 3 to be submitted to the class website
- Presentation slides need to be uploaded to the class website
- Report Deadline: April 17 - no late submission
- One group member needs to submit a soft copy of the report to the class website.

Program Outcomes

- a. Ability to apply knowledge of mathematics, science, and engineering
- b. Ability to design and conduct experiments, as well as to analyze and interpret data
- c. Ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- d. Ability to function on multi-disciplinary teams
- e. Ability to identify, formulate, and solve engineering problems
- f. Understanding of professional and ethical responsibility
- g. Ability to communicate effectively
- h. Broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
- i. Recognition of the need for, and an ability to engage in life-long learning
- j. Knowledge of contemporary issues
- k. Ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Course Learning Objectives

- To obtain understanding of the architecture, technology and protocols of computer networks
- To have an ability to apply knowledge of application, transport, network, data link, and physical layers to solve problems in computer networks
- To obtain knowledge of contemporary topics in computer networking
- To have an ability to communicate effectively with fellow engineers.

Course Description

Comparative evaluation of network architecture, layering model, standards, protocol examples for ISO and TCP/IP layers. Network applications, transport layer protocols, Internet routing, data link and physical transmissions. Applications in world wide web, file transfer, electronic mail, peer-to-peer and other areas.

Outline

This is a tentative schedule subject to change with fair notice:

Week	Date	Topic	Chap/Sect
1	1/23	Overview	
2	1/28	Protocol Hierarchies	1.3.1
		Reference Models: OSI, TCP/IP, IEEE 802	1.4
3	1/30	Network Classifications	1.2
		Internet Architecture	1.5.1
		Standards	1.6
4	2/4	Analog & Digital Data Communication	2.1
		Guided Transmission Media	2.2
5	2/6	Modulation & Multiplexing	2.5
6	2/11	Telephone system, ADSL	2.6
8	2/13	Cable TV	2.8
		Wireless Transmission	2.3
		Data Link Layer	3.1
9	2/18	Error Detection and Correction	3.2
10	2/20	Elementary Data Link Protocols	3.3
11	2/25	Sliding Window Protocols	3.4
12	2/27	Example Data Link Protocols	3.5
13	3/4	Channel Allocation	4.1
13	3/6	Multiple Access Protocols	4.2
14	3/11	Midterm	

15	3/13	Ethernet	4.3
16	3/18	WiFi	4.4
17	3/20	Layer 2 Switching & VLAN	4.8
18	4/1	Network Layer	5.1
19	4/3	Routing Algorithms	5.2
20	4/8	Congestion Control Algorithms	5.3
21	4/10	Internet Protocol (IP) v4	5.6
22	4/15	IPv6	5.6.3
23	4/17	Transport Layer	6.1.1
		Transport Protocols	6.2
		Internet Transport Protocols: UDP	6.4
24	4/22	Internet Transport Protocols: TCP	6.5
		HTTP	7.3.4
25	4/24	Project Presentations	
26	4/29	Project Presentations	
27	5/1	Project Presentations	
28	5/6	Project Presentations	
29	5/8	Project Presentations	
30	5/13	Project Presentations	
31	5/16	Final @ 12:15 pm	