San José State University
College of Engineering/Computer Engineering Department
CMPE 206, Computer Network Design, Section 1, Spring 2016

Course and Contact Information

Instructor:	Dr. Rod Fatoohi
Office Location:	ENG 273
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Office Hours:	Tuesday & Thursday 3 – 4:30 pm or by appointment (electronically or in-person)
Class Days/Time:	Tuesday & Thursday 4:30 – 5:45 pm
Classroom:	ENG 337
Prerequisites:	Classified graduate standing or instructor consent

Course Format

In Person (Web Supplements)

Faculty Web Page

- Class website: https://sjsu.instructure.com
- Students are required to check the class website regularly (at least twice a week).

Course Description

Network topology and queuing theory. The seven layers of the ISO reference model: physical, data link, network, transport, session, presentation and application. Example networks. Network design project.

Learning Outcomes and Course Goals

Course Learning Outcomes (CLOs)

1. To obtain understanding of the architecture, technology and protocols of computer networks
2. To have an ability to apply knowledge of application, transport, network, data link, and physical layers to solve problems in computer networks
3. To have an ability to design & conduct networking experiments, to analyze & interpret data with the help of manual pages & documentations
4. To obtain knowledge of contemporary topics in computer networking
5. To have an ability to communicate effectively with fellow engineers.

Upon successful completion of this course, students will be able to

1. To satisfy CLOs 1 & 2 through attending the class meetings, performing homework assignments and the exams.
2. To satisfy CLO 3 through conducting the lab assignments.
3. To satisfy CLO 4 through working on the project.
4. To satisfy CLO 5 through working on the lab assignments and the project.

Required Texts/Readings

Textbook

Computer Networks, 5th Ed., 2011, Tanenbaum & Wetherall, ISBN: 978-0-13-2126953.

Other Readings

- Computer Networking: A Top-Down Approach Featuring the Internet, 6th Ed., 2013, Kurose & Ross, ISBN: 978-0-13-2856201.
- Computer Networks: A Systems Approach, 5th Ed., 2011, Peterson & Davie, ISBN: 978-0-12-3850591.
- Data and Computer Communications, 10th Ed., 2015, Stallings, ISBN: 978-0-13-3506488
- Computer Networks and Internets, 6th Ed., 2015, Comer, ISBN: 978-0-13-3587937.
- Class notes

Course Requirements and Assignments

SJSU classes are designed such that in order to be successful, it is expected that students will spend a minimum of forty-five hours for each unit of credit (normally three hours per unit per week), including preparing for class, participating in course activities, completing assignments, and so on. More details about student workload can be found in University Policy S12-3 at http://www.sjsu.edu/senate/docs/S12-3.pdf.

Exams

- ***Dates - Midterm: Thursday, March 10 at 4:30 pm. Final: Friday, May 20 at 2:45 pm.***
- Exams are multiple choices (Form T&E 0200 is required) and closed book and closed notes, except for typed (font: ≥ 11 pt) cheat sheet: 1 page for midterm, 2 pages for final.
- 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.

Lab Assignment

- To perform a set of experiments using a network simulator, analyze the results and write a report.
- Group assignment with all participants responsible for it.
- You can collaborate with your group members only. No collaboration or seeking information outside the group is allowed.
- You need to submit a soft copy to the class website by one group member.

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 5*** to be submitted to the class website
- Report Deadline: ***April 19*** to be submitted to the class website by one group member.
- Presentation slides need to be uploaded to the class website.

Homework

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

Grading Policy

Grade Determination

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

Percentage Weight

15%   Project
15%   Lab Assignment
30%   Midterm: ***Thursday, March 10 at 4:30 pm.***
40%   Final: ***Friday, May 20 at 2:45 pm.***

Penalty

- All reports (lab assignment and project) 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/project 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.

Classroom Protocol and Collaboration Guidelines

Classroom Protocol

- Students should attend all meetings of the class.
- Students are responsible for lecture, book sections, lab assignments, 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, avoid entering the class after being 10 minute late.
- 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 Guidelines

- 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 (labs or project) and grading could be based on contribution.
- If individual contribution is not stated then equal contributions and responsibilities are assumed. In this case if a group member violates the academic honesty pledge then other group members will be penalized as well.

University Policies

General Expectations, Rights and Responsibilities of the Student

As members of the academic community, students accept both the rights and responsibilities incumbent upon all members of the institution. Students are encouraged to familiarize themselves with SJSU's policies and practices pertaining to the procedures to follow if and when questions or concerns about a class arises. To learn important campus information, view University Policy S90–5 at http://www.sjsu.edu/senate/docs/S90-5.pdf and SJSU current semester, at http://info.sjsu.edu/static/catalog/policies.html - Policies and Procedures. In general, it is recommended that students begin by seeking clarification or discussing concerns with their instructor. If such conversation is not possible, or if it does not address the issue, it is recommended that the student contact the Department Chair as the next step.

Dropping and Adding

Students are responsible for understanding the policies and procedures about add/drop, grade forgiveness, etc. Add/drop deadlines can be found on the current academic year calendars document on the Academic Calendars webpage at http://www.sjsu.edu/provost/services/academic_calendars/. 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 at http://www.sjsu.edu/advising/.

Consent for Recording of Class and Public Sharing of Instructor Material

- Common courtesy and professional behavior dictate that you notify someone when you are recording him/her. You must obtain the instructor's permission to make audio or video recordings in this class. Such permission allows the recordings to be used for your private, study purposes only. The recordings are the intellectual property of the instructor; you have not been given any rights to reproduce or distribute the material.
- Course material developed by the instructor is the intellectual property of the instructor and cannot be shared publicly without his/her approval. You may not publicly share or upload instructor generated material for this course such as exam questions, lecture notes, or homework solutions without instructor consent.

Academic integrity

Your commitment, as a student, to learning is evidenced by your enrollment at San Jose State University. The University Academic Integrity Policy F15-7 at http://www.sjsu.edu/senate/docs/F15-7.pdf 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 Student Conduct and Ethical Development website is available at http://www.sjsu.edu/studentconduct/.

Campus Policy in Compliance with the American Disabilities Act

If you need course adaptations or accommodations because of a disability, or if you need to make 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 at http://www.sjsu.edu/president/docs/directives/PD_1997-03.pdf requires that students with disabilities requesting accommodations must register with the Accessible Education Center (AEC) at http://www.sjsu.edu/aec to establish a record of their disability.

CMPE 206 / Computer Network Design, Spring 2016, Course Schedule

This is a tentative schedule subject to change with fair notice in the class

Mtg	Date	Topic	Chap/Sect
1	1/28	Overview	
2	2/2	Protocol Hierarchies	1.3.1
		Reference Models: OSI, TCP/IP, IEEE 802	1.4
3	2/4	Network Classifications	1.2
		Internet Architecture	1.5.1
		Standards	1.6
4	2/9	Analog & Digital Data Communication	2.1
		Guided Transmission Media	2.2
5	2/11	Modulation & Multiplexing	2.5
6	2/16	Telephone system, ADSL	2.6
7	2/18	Cable TV	2.8
		Wireless Transmission	2.3
		Data Link Layer	3.1
8	2/23	Error Detection and Correction	3.2
9	2/25	Elementary Data Link Protocols	3.3
10	3/1	Sliding Window Protocols	3.4
11	3/3	Example Data Link Protocols	3.5
12	3/8	Channel Allocation	4.1
13	3/10	Midterm	
14	3/15	Multiple Access Protocols	4.2
15	3/17	Ethernet	4.3
16	3/22	Wireless LAN	4.4
17	3/24	Layer 2 switching & VLAN	4.8
18	4/5	Network Layer	5.1
19	4/7	Routing Algorithms	5.2
20	4/12	Congestion Control Algorithms	5.3
		Internet Protocol (IP) v4	5.6
21	4/14	IPv6	5.6.3
		Label Switching & MPLS	5.6.5
22	4/19	Transport Layer	6.1.1
		Transport Protocols	6.2
		Internet Transport Protocols: UDP	6.4
23	4/21	Internet Transport Protocols: TCP	6.5
		HTTP	7.3.4

24	4/26	Project Presentations
25	4/28	Project Presentations
26	5/3	Project Presentations
27	5/5	Project Presentations
28	5/10	Project Presentations
29	5/12	Project Presentations
	5/20	Final @ 2:45 pm

No classes on March 29 & 31