San Jose State University **Computer Engineering Department**
CmpE 207 – sections 3 & 4 **Network Programming and Application**
Instructor: Dr. Rod Fatoohi **Fall 2009**

Course overview

Textbook

- Internetworking with TCP/IP Vol. 3, Client-Server programming and applications, Comer and Stevens, Linux/POSIX Sockets version, ISBN: 0-13-032071-4, 2001.
- Reader

References

- UNIX Network Programming Vol. 1, 3/e: The Sockets Networking API, Stevens, Fenner & Rudoff, ISBN: 0-13-141155-1, 2004.
- UNIX Network Programming Vol. 1, 2/e: Networking APIs - Sockets and XTI, W. Stevens, ISBN: 0-13-490012-X, 1998.
- UNIX Network Programming, Vol. 2, 2/e: Interprocess Communications, W. Stevens, ISBN 0-13-081081-9, 1999.
- UNIX Network Programming, Stevens, ISBN: 0-13-949876-1, 1990.

Exam & Grading

20% Project
20% Lab Assignments
25% Midterm: October 15 at 6 pm.
35% Final: Thursday, December 10 at 6 pm.
Exams are multiple choices: open book & notes (Form T&E 0200 is required).
No laptops allowed in the exams.
No make-ups exams except in case of verifiable emergency circumstances.

A+ : > 94	A : 90 – 94	A- : 85 – 89
B+ : 80 – 84	B : 75 – 79	B- : 70 – 74
C+ : 65 – 69	C : 60 – 64	F : < 60

(0.5 – 0.9) = 1
(0.1 – 0.4) = 0

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 are required to report all infractions to the Office of Judicial Affairs. 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 DRC to establish a record of their disability."

Time & Location

Class: Thursday 6 – 7:50 pm, ENG 331
Lab: Thursday 8 – 10:50 pm, ENG 206
No class on October 8 (Furlough), November 25 (Thanksgiving), December 3 (Furlough)

My Furlough Days:

August 28 (Friday)	*September 22 (Tuesday)*	September 30 (Wednesday)
October 8 (Thursday)	*October 19 (Monday)*	November 6 (Friday)
November 13 (Friday)	December 3 (Thursday)	December 11 (Friday)

Contact

Office Hours: Wednesday 2 – 3 pm, Thursday 2 – 6 pm, or by appointment only.
Office: ENG 273.
Phone: (408) 924-4059.
Email: rfatoohi@email.sjsu.edu
URL: http://www.engr.sjsu.edu/fatoohi/cmpe207/cmpe207.html
Yahoo Study Group: normally initiated by a student
Answering phone calls & checking email are during office hours only.

Attendance

Highly recommended
Avoid disturbing the class: turn-off cell phones (or put them on vibrate mode), no text messaging in the class or the exams, avoid entering class after 15 minute late, ...
Students are responsible for lecture, book sections, lab assignments, and project presentations.

Prerequisite

CmpE 206 or equivalent.
Basic Operating Systems Design Course (CmpE 225, CmpE 142, or equivalent)
Proficiency in C/C++
Familiarity with UNIX

Lab

To provide hands-on experience with network programming at different levels. Lab assignments include programming exercises in sockets, RPC, and network services.

- Exercises start from very simple client/server sessions to more advanced ones
- Report has a running code in our lab that includes detailed comments, results, ...
- Lab reports (one report per group) are due in two weeks - no late submission
- No email or fax submission
- Demo of the results should be expected with all group members present.
- A group of two to three students works on a single assignment.
- Individual contribution should be stated in the report.
- You need to submit a hard copy (in class) and soft copy to Turnitin.com for every lab assignment.
- You need to get a lab account through https://unix.engr.sjsu.edu/wiki/doku.php, if you don't have one already (through other courses).

Project

Write a healthcare distributed application that has different users accessing patients' medical records. Users include heath providers (physicians, nurses, …) insurance companies, and patients. Different APIs, such as BSD sockets, XTI, RPC, Java sockets, Java RMI, CORBA, .NET, SOAP, and MPI may be used by different groups (each group has two or three students).

- Deliverables:
  - Code running on a Linux and/or Windows machine
  - Report explaining the method and the code
  - Presentation by all participants
- Methodology: chosen by a group and approved by instructor otherwise assigned by instructor.
- Proposal (one page) Deadline: October 29
- Report Deadline: December 2 - no late submission
- You need to submit a hard copy of the report in class and soft copy to Turnitin.com

Course Description

Development and implementation of networking software for building distributed applications. Application Programming Interfaces: BSD Sockets, Winsock, Remote Procedure Call and Middleware. Network programming project.

Learning Objectives

To give students hands on experience in designing, developing, and implementing networking software for building distributed applications. Students will be writing and examining programs using UNIX system on a TCP/IP network.

Outline

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

Mtg #	Topic
1	Introduction
2	Overview of networking, TCP/IP protocols
3	API to communication protocols
4	Client & Server software designs
5	Threads, concurrency in server & client
6	Socket options, Non-blocking I/O
7	midterm
8	Raw sockets, Winsock
9	XDR, RPC
10	RTP
11	Project Presentations
12	Project Presentations
13	Final