Syllabus

Course Name & Number: Computer Network Programming CR320 (ECE460)

Course Description:
Principles of Networking and Network Programming. OSI Layers, Elementary distributed computing. Multi-threading, command-line interpreters and monitors. Students write a distributed computing system.
Prerequisite – CS232, MA 172 or permission of instructor.
Computer Usage: Students MUST have access to a computer with a Java compiler. E-mail access is required.

Course Notes: Handouts/diskettes/e-mail, web page
Where: Mc 206
Who: Prof. Lyon
Voice Phone: (203)641-6293
Fax: 203-877-4187
Web: http://www.DocJava.com
Textbook: Java for Programmers, by D. Lyon.

Office Hours	
Monday, Tuesday	1:00 pm - 2:00 pm
Wednesday.....	5:00 pm - 6:30 pm
E-mail:	lyon@DocJava.com
Web:	http://www.DocJava.com
Course Offerings	
CR310, Voice and Signal Processing, ...	Mc 203 Mon 2:00-4:30
CR 320, Computer Network, ...	Mc 203 Tues 2:00-4:30
SW 410, Enterprise Java	Mc 203 Wed 6:30-9:20

Outcomes:

When the course is done, Students will have deployed Java applications of their own design, on the web.

Performance Indicators:

Aside from the basics assessment procedures based on homeworks and tests, Students must obtain 75% or better on all tests. Additionally, students must perform at least 75% on the homeworks.

Course Requirements:

All homework is to be submitted on time.

The course includes three reporting periods (exam, quiz, project, etc.) and a comprehensive final.

Learning Objectives:
After the student take this course, they will know how to write Java programs that can perform network services. .
Students will understand the layers and protocols in the Internet and OSI models. Students will understand multi-threaded streaming, message routing, serialization and persistence.
Student knowledge of the basics culminated in being able to design and implement a client-server system.
Outcomes:

1. The students will learn the principles of Network Programming.
   Expected learning outcomes:
   a. Servlets
   b. RMI
   c. Object Serialization
2. The student will become proficient with the tools needed for distributed computing.
   Expected learning outcomes:
   a. Demonstrates the ability to use reflection
   b. Partition a program to function on a grid.

After students take this course, they will know how to implement a distributed computing program.
Performance Indicators:
Aside from the basics assessment procedures based on homeworks and tests, Students must obtain 75% or better on all tests. Additionally, students must perform at least 75% on the homeworks.
Course Requirements:
All homework is to be submitted on time.
The course includes three reporting periods (exam, quiz, project, etc.) and a comprehensive final.
Topics (as this is the first time the course has been offered, the order and content of the topics, as listed below, is subject to change):

1. Threads (j4p ch13)
2. Files (j4p ch14)
3. Streams (j4p ch15) Introduction to streams (output, input, file and filter streams), Filter streams (buffered input and output streams, memory I/O streams., Piped streams)
4. Readers (j4p ch16)
5. Writers (j4p ch17)
6. OSI seven layer model, and TCP/IP suite (j4p ch29) Services (FTP, Telnet, Gopher, Finger, SMTP, SNMP, HTTP, DNS)
7. Reflection (j4p ch 24), identifying producer consumer relationships.
8. Delegation (j4p ch 25)
9. Remote method invocation (j4p ch43)
10. Distributed computing issues. Class loaders, computing grids, using producer consumer relationships to partition tasks.
10. Introduction to Cryptography, (public key encryption, hash functions, signatures)
11. Java Security model (manager, resource, threads, network resources)
12. Client-side networks (getting web pages with sockets, posting output streams)
13. Server-side networking (echo server, non blocking server, chat server)

14. Data gram networking (UDP alarms, a UDP echo server, message streams).
15. Building a white board server
16. Building a white board client

Attendance Policy: Students are responsible to acquire notes and homework assignment from classmates in case of absence.

Grading:

	Weighted	
Midterm	1/3	
Final Examination	1/3	
Homework	1/3	includes tests, quizzes, projects, etc.