Course Syllabus

ECE 155B Network Computing (Elective) 4 units

Catalog Description:
Topics in this course include client-server computing, service-oriented computing, multi-threading, Java applets, Java sockets, Java Remote Method Invocation, Java servlets, Java Server Pages, Java Database Connectivity, Enterprise Java Beans, Hypertext Markup Language, eXtensible Markup Language, Web Services, programming networked applications in Java.

Prerequisites:
CS 20, ECE 155A, or by petition.

Text, References, and Software:
Recommended Texts: D. Stefik and P. Sridharan, Advanced Java Networking, Prentice Hall; E. R. Harold, Java Networked Programming, O'Reilly and Associates; ECE 155B Lecture Notes; URLs for Java and Web Services; Java programming environment and tools.

Topics Covered and Course Goals:
1. To learn the fundamentals of networked computing, client-server computing, and service-oriented computing.

2. To learn the various Java technologies that support networked computing, including Java applets, Java sockets, Java Remote Method Invocation (RMI), Java servlets, Java Server Pages (JSPs), Java Database Connectivity (JDBC), and Enterprise Java Beans (EJB).

3. To learn the key Web Services technologies, including the eXtensible Markup Language (XML), Simple Object Access Protocol (SOAP), Web Services Description Language, (WSDL) and Universal Description and Discovery (UDDI)

4. To learn how to use various Java programming environments and tools in programming networked applications including Java Development Kit (JDK) 1.6; Netbeans Integrated Development Environment (IDE) for programming projects; Ant XML-based scripting language for organizing, compiling, and running Java programs; MySQL Database Server, Query Browser, and Administrator; XStream Library for serializing/unserializing objects to/from XML; Apache Tomcat engine for running Java Servlets and JSPs; Yahoo! Local API for Web Services; CSS templates
for designing Web Pages using JSPs; and templates for each project which the students expand and extend.

5. To design and develop progressively a large distributed application for operation on multiple computers across a network that employs all of the above technologies and that utilizes all of the above tools.

6. To give students an industrial-level, hands-on network programming experience in which they design, develop, demonstrate, and document their work.

**Class/Laboratory Hours:**
Two 75 minute lectures and one 50 minute discussion section per week. This course involves substantial laboratory work and network programming in Java.

In the laboratory, students demonstrate their projects and discuss possible improvements, get feedback about their designs and implementations, etc.

**Contribution to Criterion 5:**
One and one-half years of engineering topics, consisting of engineering sciences and engineering design.

**Contribution to Program Outcomes:**

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Prepared by: Louise E. Moser  
Date: May 28, 2008