Course Syllabus

ECE 155A  Introduction to Computer Networks  4 units
(Elective)

Catalog Description:
Topics in this course include network architectures, protocols, wired and wireless
networks, transmission media, multiplexing, switching, framing, error detection and
correction, flow control, routing, congestion control, TCP/IP, DNS, email, World Wide
Web, network security, and socket programming in C/C++.

Prerequisites:
ECE 154 with a minimum grade of C-, Computer Science 12 or 60 with a minimum of C-

Text, References, and Software:
ECE 155A Lecture Notes; Handouts on current networking technology; URLs on BSD
socket programming; C/C++ programming environments and tools.

Topics Covered and Course Goals:
1. To gain knowledge and understanding of the ISO/OSI network architecture, as well as
other protocol hierarchies or stacks.
2. To learn the basics of computer networks at the physical, data link, network, transport
and application layers, including the key design issues and implementation strategies.
3. To understand the physical characteristics of wired and wireless networks, and various
communication media.
4. To study protocols at different layers of a protocol hierarchy or stack in terms of the
services that they provide and the mechanisms that they use, in particular, the protocols
used in the Internet.
5. To learn various techniques for multiplexing, switching, framing, error detection and
correction, routing, flow control and congestion control.
6. To understand the inner workings of particular network applications, including DNS,
7. To gain experience in client-server computing and BSD socket programming in
C/C++ using TCP and UDP over IP.

Class/Laboratory Hours:
Two 75 minute lectures and one 50 minute discussion section per week. This course
involves laboratory work and BSD socket programming in C/C++.
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: February 24, 2008