# EE 555 Broadband Network Architectures

# Syllabus - Spring 2008

**Description (from the University Catalog)**: ATM and BISDN, switch designs, high speed local, campus and metropolitan area networks, lightwave and photonic networks, network management techniques, applications and gigabit testbeds. Prerequisite: EE 450 and EE 465

**A slightly longer Course Description:** This course focuses on the architecture and technologies (hardware and software), principles of operation, and evaluation and design of integrated broadband computer networks. The course covers a wide range of emerging technologies used in high speed access networks, campus scale networks, and regional/national scale backbone networks. The course will consider various communication techniques (WDM, SONET, optical and electronic switching, wireless, Gigabit Ethernet, POS, etc)., primarily focusing on the physical, link and network protocol layers. The course will also explore switching and routing technologies and architectures. The prerequisites for the course, namely EE450 (Introduction to Computer Networks) and EE465 (Probabilistic Modeling of Computer Systems), shall be strictly enforced.

**Exams and Assignments**
*Midterm (30%), Final Exam (40%), Project (15%), ~6 Homework Assignments (15%).*
The Project will be based on a network design, network evaluation, or research paper on a specific topic. No make-up exams will be given. Homework assignments to be turned in on paper (not by e-mail). Remote DEN students should e-mail their homework to denhw@usc.edu
Late assignments will not be accepted.

**Grading Scale Philosophy**: curved. Expected: 30-35% (A, A-), 55-60% (B+,B,B-); 10-15% (C+ or lower)

**Schedule:** Tuesday and Thursday 2:00-3:20pm.

**Instructor:** Prof. John Silvester, EEB 240, silvester@usc.edu. Office hours 3:30-5:30 Tuesday and Thursday. (On sabbatical in Fall 2007 – contact by e-mail preferred).

**Textbook:** *Computer and Communication Networks*, Nader F. Mir, Prentice Hall, 2006, ISBN 0-13-174799-1.

**Other (Reference) Books**
1. *High Speed Networks & Internets*, 2nd edition, William Stallings, Prentice Hall, 2002, ISBN 0-13-032221-0.
2. *Optical WDM Networks*, Biswanath Mukherjee, Springer, 2006, ISBN 0-387-29055-9.
3. *High Performance Switches and Routers*, H. Jonathon Chao and Bin Liu, Wiley Interscience, 2007, ISBN-13: 978-0-470-05367-6.