
CEN 449

**BROADBAND AND HIGH SPEED
NETWORKS**

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COURSE DESCRIPTION

Introduction to broadband networks; Switches: Crossbar, Multistage Interconnection Networks (MINs), High performance switches; Network Control and Management Protocols in High Speed Networks; SDH/SONET: protocol layers, configuration, and frame structures; ATM networks: protocols, services, layering and architecture; High speed networks: MPLS, 10-Gigabit Ethernet, Broadband Wireless networks.

COURSE LEARNING OUTCOMES

This course requires the student to demonstrate the following:

1. Characterize high-speed networks.
2. Classify high-performance switches.
3. Solve internal blocking in electronic/optical switches.
4. Classify routing, congestion, and error control protocols.
5. Analyze management protocols in high-speed networks.
6. Evaluate quality of service performance in high-speed networks.
7. Apply fault tolerance techniques.
8. Recognize current high-speed networks in the local market.
9. Identify standards and migration paths to future technologies.

MAJOR TOPICS COVERED AND SCHEDULE IN WEEKS:

- ✘ Characteristics of high-speed networks 1
- ✘ High performance switches 2
- ✘ Network Control/Management Protocols 2
- ✘ SDH/SONET 2
- ✘ High speed networks 5
- ✘ Review and evaluation 2

REFERENCE BOOKS

PRIMARY

Broadband Network Architectures: Designing and Deploying Triple-Play Services

2007, Prentice Hall

by

Chris Hellberg, Dylan Greene, and Truman Boyes

SUPPLEMENTARY

Local and Metropolitan Area Networks

6th Edition, 2000, Prentice Hall

by

William Stallings

ASSESSMENT PLAN FOR THE COURSE

Homework/Quizzes	10%
Projects	10%
Midterm 1	20%
Midterm 2	20%
Final Exam	40%