THE OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING

Computer Communication Networks

CSE 6461

Credit Hours:
3.00 - 3.00

Course Levels:
Graduate (5000-8000 level)

Course Components:
Lecture

Course Description:
Foundational understanding of network analysis, error-control, routing, congestion-control, multi-access,and their examples in the context of the existing communication networks. A previous course in statistics is recommended for students taking this course.

Prerequisites and Co-requisites:
Prereq: Grad standing in Engr.

Course Goals / Objectives:
- Be exposed to a basic history of networking
- Be familiar with architectural concepts of layering and circuit and packet switching
- Master various error control techniques and their analysis
- Be familiar with different queueing models and their application to networking
- Master concepts in shortest path routing including analysis of correctness, convergence, and complexity, asynchronous routing protocols, routing on the Internet, and routing on other historical networks
- Be familiar with window-based flow control and its analysis using closed queueing networks
- Be familiar with TCP congestion control and its advantages and disadvantages
- Be familiar with multi-access systems such as polling and random access
- Be exposed to some of the open research problems in networking

Course Topics:

- Historical Perspective in Networking
- Circuit/Packet Switching and Statistical Multiplexing
- Importance of Layering for Network Architecture
- Description of Error Detection, Correction, and Recovery Mechanisms
- Analysis of Error Recovery Mechanisms
- Network Dimensioning and Elementary Queuing Analysis
- Fundamentals of Routing
- Internet Routing
- Flow/Congestion Control
- Multi-access Resource Shared Networks

Designation:

Elective