ECE 4325: Telecommunication Networks

Credit / Contact hours: 3/3

Course coordinator: Brian Nutter

Textbook(s) and/or other required material: Behrouz Forouzan, Data Communications and Networking, 4th Ed., 2006 (Recommended).


Pre-requisite(s) or co-requisites: ECE 3323

Designation: Elective

Course learning outcomes: Upon completion of this course, students should be able to do the following:

1. Describe the operation of a typical telecommunication network intended for transportation of digital voice and data in a multiplexed mode of transmission.
2. Identify various modes of network switching and routing.
3. Analyze network performance and design network links.

Student outcomes addressed: a, b, c, e, j, and k.

Topics covered

Introduction, area networks, telecommunication networks, transmission media - 4 hours
Signals and noise, coded transmission: source and channel coding - 3 hours
Network modeling, queuing theory - 8 hours
Packet switching - 4 hours
Circuit switching - 3 hours
Physical layer - 3 hours
Data layer - 3 hours
Network layer - 3 hours
SONET, ATM, frame relay - 5 hours
Serial communications - 3 hours
Tests and reviews - 3 hours