EE 465

1. **Course Number & Name:** EE 465, Intro to Networking and Network Management
2. **Course Credit and Contact Hours:** 2 Unit, 2 hours
3. **Course Coordinator:** Dr. Farid Farahmand
4. **Textbook:** *Computer Networks & Internet*, Douglas Comer, 6th Ed, Pearson, 2014, ISBN 978-0-13-358793-7
5. **Supplemental Materials:** Laptop for class activities
6. **Specific Course Information:**
   a. **Description:** This course offers a working knowledge of IP addressing, TCP and UDP, the ISO reference model, MAC and Ethernet, LAN, MAN, WAN, routing protocols, application protocols , including, client-server model, web protocols ,file transfer protocol, and email, and network elements such as repeaters, bridges, routers, and switches.
   b. **Prerequisites:** (EE 314 or CS 315), and EE 442, or consent of instructor
   c. **Co-Requisite:** EE465L, or consent of instructor
   d. **Status:** ☑ Required for EE program, ☐ Elective, ☐ Selected Elective
7. **Specific Goals for the Course:**
   a. **Specific outcomes of instruction:** Upon successful completion of this course the students will be able to:
      i. Describe the OSI and TCP/IP models and explain the difference between various servers (HTTP, FTP, DNS, mail, etc.).
      ii. Describe and compare data link layer services and multiple access techniques
      iii. Analyze network behavior and performance using various networking tools (Wireshark, tcpdump, etc.).
      iv. Describe IP packet encapsulation, IP addressing, IP classes, and apply routing algorithms to find shortest paths for network-layer packet delivery.
      v. Explain the concept of packet-switching, circuit switching, and identify and analyze the different types of packet delays and network capacity in network.

vi. Describe the difference between LAN/ MAN /WAN topologies and explain the principles of a physical, MAC, network, and transport layer protocols

b. This course supports the following ABET Student Outcome:

i. SO-1: a*n ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.*

ii. SO-4: an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.

8. Brief List of Topics to be Covered:

a. Information sources and signals
b. Transmission media
c. Transmission modes
d. Layered architecture
e. Multiplexing and demultiplexing (channelization)
f. Access and interconnection technologies.
g. TCP/IP protocols
h. The IEEE MAC sub-layer
i. WAN technologies and dynamic routing
j. LAN extensions: Fiber modems, repeaters, bridges, switches