Course number and name: 370CIS-3 Data Communication and Computer Networks

Credits and contact hours: 3 crs.; 5hrs (2hrs theory, 2 hrs Lab and 1 hr. Tutorial)

Instructor's or Course Coordinator's name: Dr. Mohammed Al-Shargabi

Text book, Title, Author, and Year: B.A. Forouzan, **Data Communications and Networking,** fourth edition, McGraw – Hill

a. **Supplemental Materials:**
   - *William Stalling,* **Data and computer communications,** Seventh edition, Prentice Hall,
   - *Tanenbanum A.,* **Computer Networks,** Seventh edition., Prentice Hall
   - *Stallings, W.,* **Data and computer communications,** Seventh edition, Prentice-Hall

Specific Course Information

a. **Catalog Description:** Overview of Computer Networks, communication models (OSI layer model, TCP/IP layer model), LAN and WAN systems, flow control and error control, Packet and circuit switching, internetworking and IP (classes, sub-netting, super-netting, etc.), transport layer protocols (TCP and UDP), and application layer protocols (DNS, SMTP, FTP, HTTP, Telnet, etc.).
b. **Pre-requisites or Co-requisites:** None
c. **Required, Elective, or Selected elective:** Required

Specific Goals for the Course

a. **Specific Outcomes of the Instruction:**
   - Define the key terminologies and concepts of data communications and networking
   - Describe concepts of physical and data link layer protocols, and design/performance issues in local area networks and wide area networks
   - Explain services and features of the various layers of data networks
   - Design different types of networks based on IP classes and different network topologies
   - Explain basic protocols of network, transport , and application layer, and how they can be used to assist in network design and implementation

b. **Students Outcomes Addressed by the Course:** a, b, i, j

Brief List of Topics to be Covered

- Introduction to computer networks
- Physical Topology
- OSI model
- TCP/IP protocol suit
- IPv4 Addresses

- Data transmission Media
- Network Performance
- LAN, WAN, AND INTERNET
- Network Security
- Application layer protocols
- Application layer protocols
- Transport layer protocols
- Network Layer and Routing
- Network Layer and Routing