Computer Networks

- **Course number and name:**
  CC 431 – Computer Networks

- **Credits and contact hours**
  Credits Hours: 3Hrs
  Contact Hours: In Lecture 2Hrs, and In Tutorial 2Hrs

- **Instructor's or course coordinator's name**
  Coordinator Name: Dr. Rowayda Sadek

- **Text book, title, author, and year**
  - James Kurose, Keith Ross "Computer Networking – A top-down approach", Prentice Hall, latest edition.
  - Andrew S. Tannenbaum, " Computer Networks", Prentice Hall, latest edition.
  - David Etheridge and Errol Simon, "Information Networks", Prentice Hall, latest edition.
  - Timothy Ramtke, "Networks", Prentice Hall, latest edition.
  - Halsall, "Data communication, computer networks and open systems", Addison-Wesley, latest edition.

- **Specific course information**
  - **a. Catalog description**
    Introduction – Computer Networks and the Internet – Networking protocol layers OSI and TCP/IP- Application Layer Principles of net applications, web and HTTP, FTP, electronic mail, DNS and Peer to Peer applications. Transport layer, Multiplexing and demultiplexing, Connectionless Transport and UDP –reliable data transfer and connection oriented transport TCP, congestion control. Network layer forwarding and routing, IP protocol, routing algorithms, Broadcast and Multicast routing. Data Link layer, introduction and services, error detection and correction techniques, Multiple access protocols and Link layer addressing, Ethernet and PPP.
  - **b. prerequisites or co-requisites**
    Prerequisites: CC331
  - **c. Type of Course (required, elective, or selected elective course) in the program**
    Required Course

- **Specific goals for the course**
  - **a. Specific outcomes of instruction**
    After the completion of this course the students will be able to:

	Course Learning Outcomes	SO
1	Acquire unified view of the broad field of computer networks.	D,J
2	Emphasize basic principles and topics of fundamental importance concerning the applications, architecture, design issues and standards of computer networks with an approach featuring the Internet.	J

3	Develop network applications and see through the complexity of computer networks.	D

Topics to be covered

- Introduction
- Computer Networks, Protocols, Architectures and Internet.
- Application Layer Principles and the web.
- HTTP, FTP, SMTP.
- DNS, peer to peer applications and socket programming.
- Transport layer services and UDP
- Reliable data transfer and TCP and congestion control.
- Network Layer and Inside the router.
- IP Internet Protocol.
- Routing algorithms and broadcast and multicast routing.
- Data Link Layer and error detection and correction.
- Multiple Access Protocols, link addressing.
- Ethernet , PPP and Revision.