

Faculty of Engineering & Technology

Interfacing Circuits and Networks

Information :

Course Code : COM 584

Level : Undergraduate

Course Hours : 3.00- Hours

Department : Specialization of Electronics & Communication

Area Of Study :

- Provide students with a general understanding of the principles of computer communication networks.
- Provide students with the most recent digital communications techniques in the broad field of cables and protocols.
- Provide students with the necessary knowledge and skills to develop further understanding on the challenges and opportunities brought in designing current and future computer communications networks.

Description :

Physical Layer: Properties of the Physical Layer, Movement of bits, Transmission Media Open Wire; Twisted Pair; Coaxial Cable; Optical Fiber. Link Layer, Role of the data link layer. Local Area Networks Definition of a Local Area Network, Ethernet , Network Interface Card , Medium Access Control Layer , Access to the Shared Medium (Cable), Transceiver Preamble, Carrier Sense Checking for other users; Possible contention. , Collision Detection (CD) Cabling (media): 10B5 Thick Ethernet (low loss co-axial cable), 10B2 Thin Ethernet (low cost co-axial cable) , 10BT Unshielded Twisted Pair (unshielded twisted pair cable, UTP CAT-5) , 10BF Fiber Optic Links (point to point fiber link), Higher bandwidth twisted pair cable (CAT-5e, CAT-6, CAT-7, STP), Higher Speed Communication interfaces: Fast Ethernet 100 Mbps, Gigabit Ethernet 1 Gbps, 10 Gbps, and higher.

Course outcomes :

a. Knowledge and Understanding: :

- 1 - Have a Knowledge of contemporary Network communications issues.
- 2 - Have a Conceptual understanding of the mathematics, statistics, and computer works.

b. Intellectual Skills: :

- 1 - Apply knowledge of mathematics, science and engineering.
- 2 - Creative, innovative and pro-active demeanor.

c. Professional and Practical Skills: :

- 1 - Use the techniques, skills, and modern engineering tools necessary for engineering practice.
- 2 - Apply of systematic engineering synthesis and design processes
- 3 - Apply of established engineering methods to complex engineering problem solving.

d. General and Transferable Skills: :

- 1 - Collaborate effectively within multidisciplinary team
- 2 - Communicate effectively
- 3 - Demonstrate efficient IT capabilities.
- 4 - Effectively manage tasks, time, and resources.

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Introduction to networks	5	3	2
Network Protocols	10	6	4
Physical Layer	10	6	4
Transmission Media	10	6	4
Data Link Layer	10	6	4
Medium Access Control Layer	10	6	4
Local Area Networks	10	6	4
Selected topics on computer communication systems	10	6	4

Teaching And Learning Methodologies :

Interactive Lecturing
Tutorial/Discussion
Laboratory

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
Final exam	40.00		
In Class Quizzes and participation	20.00		
o Electronic and computer Lab Experiments	10.00		
o Mid-Term Exams	30.00		

Recommended books :

Computer Networking: A Top-Down Approach," by Jim Kurose and Keith Ross, 5th Edition