

ENG305 Computer Communications

Level: 3

Credit Units: 5 Credit Units

Language: ENGLISH

Presentation Pattern: EVERY JULY

Synopsis:

Computers are a combination of complex digital systems. Each computer controls and communicates with its internal sub-systems through digital signals at high speed and precision. The power of computers are multiplied many folds when they are linked up through communication channels to form computer networks. Again the reliability and speed at which they communicate with one another determines the usefulness and capability of the computer network to share information and perform remote control functions across greater distances almost instantaneously. This course ENG305 lays down the fundamental understanding of the ways and methods computers used to communicate with one another and within networks, even though the computers may be made from different hardware technologies and run on diverse software platforms. Essential data communication will be covered and also in a bigger picture the basic mechanisms of computer communication within a local area network and internetworks will be taught. There will be also laboratory activities and a mini-project to enhance the understanding of the concepts and encourage hands-on application.

Topics:

- Data Communication, Data Networking & the Internet
- Protocol Architecture, TCP/IP & Internet-based Applications
- Data Transmission
- Transmission Media
- Signal Encoding Techniques
- Digital Data Communication Techniques
- Data Link Control Protocols
- Multiplexing
- Local Area Networks
- High-speed LANs
- Circuit Switching and Packet Switching
- Asynchronous Transfer mode

Textbooks:

Stallings, W: Data and Computer Communications (eTextbook) 10th edition Prentice-Hall Pearson (2014)

ISBN-13: 9781292014395-AA

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Learning Outcome:

- Illustrate the layer functions of OSI and TCP/IP protocol models.
- Examine the fundamentals of signal and data transmissions, various signal encoding and modulation techniques.
- Analyze the data link control protocols used in digital data communication.
- Demonstrate the analog and digital analog multiplexing techniques.
- Estimate the delay, throughput, efficiency, bit rate and other parameters related to data communications.
- Compare the different media access control schemes in high speed LANs; different data link protocols in data communications.
- Formulate error detection codes and received bit streams.
- Rate the technologies and protocols used in Local Area Networks (LAN).

Assessment Strategies:

Continuous Assessment Component	Weightage (%)
CLASS TEST	15
GROUP BASED ASSIGNMENT	15
Sub-Total	30

Examinable Component	Weightage (%)
Written Exam	70
Sub-Total	70

Weightage Total **100**