

CSH408: Computer Networking

Teaching Scheme Lectures: 4 hrs/Week Tutorials: 2 hr/Week Credits: 6	Examination Scheme Class Test -20 Marks Teachers Assessment – 10 Marks Attendance – 20 Marks End Semester Exam – 100 marks
--	---

Prerequisite: -

1. Familiarity with the fundamentals of Digital Electronics.
2. A network simulation method

Course Objectives:

6. To learn the basics of topology.
7. To learn the principles of Inter Networking.
8. To build an application using Network Simulator.

Detailed Syllabus

UNIT-I (10 Hours) Introduction to Computer Networks: Data Communication System and its components, Data Flow, Computer network and its goals, Types of computer networks: LAN, MAN, WAN, Wireless and wired networks, broadcast and point to point networks, Network topologies, Network software: concept of layers, protocols, interfaces and services, ISO-OSI reference model, TCP/IP reference model.	
UNIT-II (6 Hours) Physical Layer: Concept of Analog & Digital Signal, Bandwidth, Transmission Impairments: Attenuation, Distortion, Noise,. Introduction to Transmission Media: Twisted pair, Coaxial cable, Fiber optics, Wireless transmission (radio, microwave, infrared), Switching methods, integrated services digital networks.	
UNIT-III (10 Hours) Medium Access sub layer: Channel Allocations, LAN protocols -ALOHA protocols, Collision free Protocols-Token Passing, IEEE standards, Ethernet and Token Ring. Data Link Layer: Framing, Error detection and correction codes: checksum, CRC, hamming code, Sliding Window Protocols: Stop & Wait ARQ, Go-back-N ARQ, Selective repeat ARQ,	
UNIT-IV (10 Hours) Network Layer: Point-to Point networks, Routing algorithms, Congestion control algorithms, Internetworking Devices, IP protocol, IP addresses: IPv4 classful and classless addressing, Introduction to IPv6.	
UNIT-V (10 Hours) Transport Layer: Connection management: Three-way Handshaking. Introduction of User Datagram Protocol (UDP), Basics of Transmission Control Protocol. (TCP).	
UNIT- VI (10 Hours) Application Layer: File Transfer Protocol, Domain Name System, Electronic mail, Intro of Client server model, Hyper Text Transfer Protocol, WWW, Example Networks - Internet and Public	

Head of Computer Applications
 Department of Computer Applications
 University of Computer Applications
 Bangalore

Registrar
 Invertis University
 Bareilly

Dean Academics
 Faculty of Computer Applications
 Invertis University, Bareilly (UP)

Text and Reference Books

1. Computer Networks, A. S Tanenbaum, Pearson education, 4th Edition.
2. Data and Computer Communication, W. Stallings, Macmillan Press, 7th Edition
3. Data Communication & Networking, 4th Edition, Tata McGraw Hill. By Behrouz A. Forouzan.
4. Computer Networking, 3rd Edition, Pearson Education by James F. Kurose and Keith W. Ross

Course Outcomes:

- 1.Explain and demonstrate the mechanics associated with IP addressing, device interface, association between physical and logical addressing, subnetting and supernetting
- 2.Understand the techniques and protocols used (DSL, SONET, ATM).
- 3.Know the principles of congestion control and trade-offs in fairness and efficiency
- 4.Distinguish between analog and digital signals and understand their characteristics (Fourier representation, signal corruption).

Head
Department of Computer Applications
Faculty of Computer Applications
Invertis University, Bareilly (UP)

Dean Academics
Faculty of Computer Applications
Invertis University, Bareilly (UP)

Registrar
Invertis University
Bareilly