



GANPAT UNIVERSITY

FACULTY OF COMPUTER APPLICATIONS

Programme	B. Sc. IT (Hons.)					Branch/Spec.	Computer Applications		
Semester	III					Version	1.0.0.0		
Effective from Academic Year				2025-26		Effective for the batch Admitted in			June 2024
Subject Code	U23E6ACN		Subject Name			Advanced Computer Networks			
Teaching scheme						Examination scheme (Marks)			
(Per week)	Lecture (DT)		Practical (Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	2	-	-	-	2	Theory	25	25	50
Hours	2	-	-	-	2				

Objective:

Students can improve the knowledge in networking concepts and security at advance level.

Pre-requisites:

Fundamental knowledge of Networking.

Course Outcomes :

Name of CO	Description
CO1	Know actually work of OSI/TCP Model
CO2	How to transmit the data on the network
CO3	To understand the Multiplexing, Routing and Switching
CO4	How to using Cryptography in computer network

Mapping of CO and PO

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	1	3	1	3	1	2	1	2	1	3	2
CO2	2	1	3	1	3	1	3	1	1	1	3	2
CO3	2	2	3	1	3	1	2	1	2	1	3	2
CO4	1	1	3	1	3	1	2	1	1	1	3	2

Theory syllabus		
Unit	Content	Hrs
1	Basic of Computer Network Overview of Reference Model: ISO / OSI Model & TCP/IP Model Data Communication & Data Flow: Simplex Communication, Half Duplex & Full Duplex Communication Channel, Baseband & Broadband Transmission, Connection Oriented & Connectionless Services, Modem Introduction	6
2	Introduction to Transmission Media Wired Transmission Media : Magnetic Media, Twisted Pair, Coaxial Cable, Fiber Optic Cable Introduction of Frequency & Wavelength Wireless Transmission Media: Radio Transmission, Microwave Transmission, Infrared Transmission & Electro Magnetic Spectrum	8
3	Multiplexing, Routing & Switching Multiplexing: TDM & FDM, Routing Methods: Next-Hop, Host Specific, Network Specific & Default Routing, Static & Dynamic Routing Switching: Circuit Switching & Packet Switching	8
4	Network Security Domain Name System: Introduction and steps of DNS. Cryptography: Encryption & Decryption, Methods of Encryption & Decryption, Substitution Cipher, Transposition Cipher, One time pad, Fundamental Cryptographic Principles. Cryptographic Attack	8
Text Books:		
1	Computer Network, S.S.Shinde, New Age International (P) Limited Publishers	
Reference Books:		
1	Computer Networking: A Top-Down Approach by James F. Kurose and Keith W. Ross, Pearson	
2	Data and Computer Communications by William Stallings,Pearson	
Web References / MOOC / Certification Course		
1	https://onlinecourses.swayam2.ac.in/ntr25_ed44/preview	
2	https://onlinecourses.nptel.ac.in/noc25_cs02/preview	
3	https://nptel.ac.in/courses/106105080	
4	https://nptel.ac.in/courses/106106091	
5	https://www.coursera.org/learn/tcpip	
6	https://www.edx.org/learn/computer-science/ibm-networking-basics-and-security	
Question Paper Scheme:		
	University Examination Duration: 1 Hour Paper Structure: Q-1 Must be from Unit 1 & 2: Any One out of Two (05 Marks) [CO1, CO2] Q-2 Must be from Unit 1: Any One out of Two (05 Marks) [CO1] Q-3 Must be from Unit 2: Any One out of Two (05 Marks) [CO2] Q-4 Must be from Unit 3: Any One out of Two (05 Marks) [CO3] Q-5 Must be from Unit 4: Any One out of Two (05 Marks) [CO4]	