Computer Networks

Program: B.Tech in Computer Science
Semester: 6th Semester
Prerequisites: Digital Electronics, Data Communication Basics
Credits: 3 Lecture Hours, 1 Tutorial, 2 Practical

Overall Aim

To provide a strong foundation in network architecture, protocols, and communication mechanisms used in modern computer networks.

Course Outcomes (COs)

CO1: Describe the functions and interactions of the layers in the OSI and TCP/IP models.
CO2: Compare and contrast different network topologies and their characteristics.
CO3: Explain various transmission media and their characteristics, and analyze the performance of different signal encoding techniques.
CO4: Apply error detection and correction techniques to ensure reliable data transmission.
CO5: Analyze the performance of different flow control mechanisms.
CO6: Configure basic IP addressing and routing protocols in a simulated network environment.
CO7: Create a simple network topology diagram illustrating the principles of routing.
CO8: Differentiate between TCP and UDP protocols and their applications.
CO9: Evaluate the suitability of different application layer protocols (HTTP, FTP) for specific network tasks.

Program Outcomes (POs)

PO1: Apply knowledge of mathematical, scientific, and engineering fundamentals to solve complex computer science problems.
PO2: Design, implement, and evaluate computer-based systems, processes, components, or programs to meet desired needs.
PO3: Function effectively as an individual, and as a member or leader in diverse teams.
PO4: Communicate effectively with a range of audiences.
PO5: Analyze and interpret complex data sets to make informed decisions.
PO6: Engage in life-long learning to adapt to emerging technologies and challenges in computer science.