Elective Course 5: Business Applications of Networking & Telecommunication

Course Type:	PS: Program Specialisation	Course Credits:	2
Course Code:	S3SE513	Course Duration:	30 Hours

Course Objective:

- To familiarize students with foundational concepts, architectures, and technologies of networking and telecommunication.
- To equip students with practical skills for managing and optimizing network resources.
- To develop analytical capabilities to assess network security, performance, and reliability.
- To foster understanding of telecommunication services and their strategic role in business operations.
- To cultivate insights into emerging trends and innovations in networking and telecommunications.

Course Outcomes:

- CO1: Understand the fundamental concepts of networking and communication models for Business.
- CO2: Identify and compare different network devices and transmission media used in networking.
- CO3: Analyse data communication processes and network access mechanisms in modern networks for Business.
- CO4: Apply the role of telecommunications and wireless technologies in business environments.
- CO5: Evaluate network security mechanisms and their role in cyber security management.
- CO6: Propose emerging networking technologies for business innovation and competitive advantage.

Unit/ Module	Content	CO Mapping	Hours Assigned
1	Fundamentals of Networking for digital Business: Types of networks	CO1	5

	(LAN, WAN, MAN, PAN), Network topologies, OSI and TCP/IP models, IP addressing, DNS		
2	Network Devices and Transmission Media: Routers, Switches, Hubs, Modems, Firewalls,Wired and wireless media, Bandwidth and latency	CO2	5
3	Application of Data Communication and Network Access to Business:Signal transmission, Multiplexing, encoding techniques, Ethernet, Switching techniques, Protocols (HTTP, FTP,TCP/IP) its application to integrate the business with case studies.	CO3	5
4	Business Applications of Telecommunications system and Wireless Networks . Mobile networks (3G, 4G, 5G), Bluetooth,Satellite communication, VoIP, IoT Connectivity, Business telecom infrastructure its Application to Business with case studies	CO4	5
5	Network Security and Cyber security Management for business : Firewalls, VPNs, IDS/IPS, Encryption, Authentication protocols, Cyber threats and countermeasures and its significance to business with case studies	CO5	5
6	Emerging Trends of Networking and Telecommunication system and its	CO6	5

	strategic significance with case studies: Cloud computing, SDN, Edge computing, AI in networks, green networking with emerging case studies		

Textbooks:

- Behrouz A. Forouzan, Data Communications and Networking, McGraw-Hill Education, 5th Edition.

Reference Books:

1. Andrew S. Tanenbaum and David J. Wetherall, Computer Networks, Pearson, 5th Edition.
2. William Stallings, Data and Computer Communications, Pearson, 10th Edition.
3. Curt White, Data Communications and Computer Networks: A Business User's Approach, Cengage, 8th Edition.
4. James F. Kurose and Keith W. Ross, Computer Networking: A Top-Down Approach, Pearson, 7th Edition.