5.	Discuss advance principles of Data Communications
6.	Explain current and emerging trends in Data Communications.

Topics/Content outline:

Topics include: discussion of basic network concepts and topologies, transmission media and related issues, network protocols and standards, principles of data communication, current and emerging trends in data communications

Expanded Outcomes
Outcome 1: Discuss basic Data communications, Network Concepts and network topologies: Describe past, current and future communication networks and their application.   Standards (ITU, ISO, IEEE, IETF etc.)   Discuss the purpose of a network, different types of networks, Network topologies.   Identify the basic components of communication networks and describe their application.   Explain different forms of data communications (Range: serial and parallel, simplex, half duplex, full duplex).   Discuss the facilities and identify the issues related to Public Data Network.   Describe the data communication facilities provided by the PSTN. Discuss the limitations in bandwidth of Public Data Network (PSTN)
Outcome 2: Discuss different types of transmission media and identify issues relating to them: Network media and connectors, Network Architectures, identify issues.
Outcome 3: Network Protocols and standards: Common networking protocols (layer 2)
Outcome 4: Discuss Networking components   Describe popular networking components   Range: NIC, cable connectors, configuring and troubleshooting, drivers, Hubs, repeaters, Multi Access Units, bridges, switches, understanding VLANs, Routers, Brouters, and Gateways
Outcome 5: Discuss Advance principles of Data Communication: Describe WANs on the Public Data Network.   Explain why a modem must be used when data is transmitted over the Public Data Network.   Describe the derivation and structure of digital leased circuits.   Describe ISDN, XDSL and other high bandwidth technologies.   Solve simple data transmission problems.
Outcome 6: Explain current and emerging trends in data communications

Assessment:

Weighting	Nature of assessment	Learning outcomes
30	Test 1 (Theory Test)	1, 2, 3, 4
30	Tests 2 (Practical Test)	1, 2, 3, 4, 5
40	Final Exam	3, 4, 5, 6

Learning and teaching approaches: Lectures, Discussions and Demo.

Learning resources required:

Textbook: refer to the current programme booklist.