DSE-2C	BCS-E601C	COMPUTER NETWORKS	L	C	CIA	ESE	Time for ESE
			4	4	30	70	3Hrs.
PREREQUISITES		:	Knowledge of operating system and basic electrical principles				
COURSE OBJECTIVES/ LEARNING OUTCOMES		:	Upon completion of this module, students will be able to: • analyze the requirements for a given organizational structure and select the most appropriate networking architecture and technologies; • analyze, specify and design the topological and routing strategies for an IP based networking infrastructure				

NOTE: The question paper shall consist of three sections (Sec.-A, Sec.-B and Sec.-C). **Sec.-A** shall contain 10 objective type questions of one mark each and student shall be required to attempt all questions. **Sec.-B** shall contain 10 short answer type questions of four marks each and student shall be required to attempt any five questions. **Sec.-C** shall contain 8 descriptive type questions of ten marks each and student shall be required to attempt any four questions. Questions shall be uniformly distributed from the entire syllabus. The previous year paper/model paper can be used as a guideline and the following syllabus should be strictly followed while setting the question paper.

Basic Concepts: Components of data communication, distributed processing, Line configuration, topology, transmission mode, and categories of networks. **3L**

OSI and TCP/IP Models: Layers and their functions, comparison of models. **4L**

Digital Transmission: Interfaces and Modems: DTE-DCE Interface, modems, cable modems. **3L**

Transmission Media: Guided and unguided, Attenuation, distortion, noise, throughput, propagation speed and time, wavelength, Shannon Capacity. **5L**

Telephony: Multiplexing, error detection and correction, Many to one, one to many, WDM, TDM, FDM, circuit switching, packet switching and message switching. **5L**

Data Link control protocols: Line discipline, flow control, error control, synchronous and asynchronous protocols overview. **5L**

ISDN: Services, historical outline, subscriber's access, ISDN, Layers, and broadband ISDN. **5L**

Devices: Repeaters, bridges, gateways, routers, The Network Layer, Design Issues, Network Layer Addressing and Routing concepts (Forwarding Function, Filtering Function);Routing Methods (Static and dynamic routing, Distributed routing, Hierarchical Routing);Distance Vector Protocol, Link State protocol. **20L**

Transport and upper layers in OSI Model: Transport layer functions, connection management, Functions of session layers, Presentation layer, and Application layer. **10L**

BOOKS RECOMMENDED :

1. A.S. Tenanbaum, Computer Networks, 4th Ed., Pearson Education Asia, 2003.
2. Behrouz A. Forouzan, Data Communication and Networking, 2nd Ed., Tata McGraw Hill.
3. D. E. Comer, Internetworking with TCP/IP, Pearson Education Asia, 2001.
4. William Stallings, Data and Computer Communications, 7th Ed., Pearson education Asia, 2002.

DSE-2C (LAB)	BCS-E651C	COMPUTER NETWORKS LAB	P	C	CIA	ESE	Time for ESE
			4	2	30	70	3Hrs.

1. Simulate Cyclic Redundancy Check (CRC) error detection algorithm for noisy channel.
2. Simulate and implement stop and wait protocol for noisy channel.
3. Simulate and implement go back n sliding window protocol.
4. Simulate and implement selective repeat sliding window protocol.
5. Simulate and implement distance vector routing algorithm
6. Simulate and implement Dijkstra algorithm for shortest path routing.