

**B.SC. VI Semester**  
**Subject- Computer Application**  
**Paper – Computer Networks and Data Warehousing Techniques**

Duration	Max Marks	Min Marks	CCE	Practical	
3hrs	85	28	15	Max	Min
				50	17

**UNIT I**

**14 Lectures**

Needs and Advantages- Network, Types- Server based, Peer, Hybrid, Server types, Network Topology- Bus, Star, Ring, Star bus, Star ring, Mesh, Network Protocols- Hardware Protocols, Software Protocols. **Signal Transmission-** Digital signaling, analog signaling, bits synchronization, baseband and broadband transmission, **Network media types-** Properties and specialties, comparative studies. **Network adapters** - working principle, configuration and selection. OSI, TCP/IP model, Comparison between OSI and TCP/IP, **IEEE 802 standards-** 802.3(CSMA/CD Bus), 802.4(Token Bus),802.5 (Token Ring),**Ethernet** - working principle, 10&100 MBPS Ethernet. **FDDI.**

**Unit-II**

**14 Lectures**

Networking Technologies- Fiber Channel, ATM, Network Connectivity- Hubs, Bridges, Repeaters, Multiplexers, Internet Connectivity- Routers and Routers, Gateways. Overview of Internet: Internet and TCP/IP, Internet addressing, Concepts of ISP, Concept of URL addresses, Hypertext Concepts and WWW, FTP, NNTP, Email, SMTP. Internet Security- Internet Security Issues, Embedded and Software based firewall, Data Encryption, Digital Signatures.

**Unit-III**

**14 Lectures**

**Data Warehouse: Introduction and Building Blocks-** Objectives, **Features-**Types of Data, Data Granularity. Data Warehouses and Data Marts, Top-Down v/s Bottom-Up Approach. **Overview-** Architecture of Data Warehouse and its Components. Metadata and its Types.

**Unit-IV**

**Dimensional Modeling-** Requirements and Design Decisions. Dimensional Modeling Basics- Dimensions and Fact Table, E-R Modeling v/s Dimensional Modeling, Star Schema, Data Granularity, Star Schema keys and Its Advantages, Snowflake Schema- Its Advantages and Disadvantages, Aggregate Fact Tables- Need and Types. **Data Extraction, Transformation and Loading(ETL)-** Overview, Steps of ETL , Data Extraction- Techniques & Types, Data Transformation- Types and Implementation, Data Loading- Techniques & Processes.

**Unit- V**

**14 Lectures**

**Online Analytical Processing (OLAP)-** Definitions, Rules, Characteristics, Functions, Features, Hypercubes, Drill- Down and Roll-Up Analysis, Models- Overview , ROLAP v/s MOLAP. Latest Trends In Databases- Object Oriented Database, Web Database, Multimedia Database, Relational Database.

**Text Books:**

Computer Networks, 3<sup>rd</sup> edition, 1997, by A.S Tanenbaum. PHI. Local Area Networks – 5<sup>th</sup> Edition, S.K. Basandra and S. Jaiswal.

Data Warehousing Fundamental by PualrajPonniah(Wiley India Edition) Unit I,II, III, IV Data Warehousing,Data Mining &OLAP by Alex Berson Stephen J.Smith(Tata McGraw-Hill Edition)s Data Mining Concepts and Techniques, Han Kamber, Morgan Kaufmann Unit 1

**Reference Books:**

Data and Computer Communication, 1996, William Stallings, PHI  
 Data Communication and Networking 2<sup>nd</sup> edition by Behrouz A. Forouzan, at McGraw-Hill  
 Introduction to Business Intelligence and Data Warehousing, PHI  
 The Data Warehouse Lifecycle toolkit, Ralph Kimball, John Wiley.