Course: 104: Computer Network

Course Code	**104**
Course Title	**Computer Network**
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Review / Revision	June 2020
Purpose of Course	This course aims towards learning fundamentals of computer network. The course teaches students about the various network technologies and popular network protocols
Course Objective	1.To make students learn about computer network fundamentals 2.To make students familiar with services offered at each layer of the network protocol stack 3.To make students learn various protocols at data link layer, network layer, and transport layer of network.
Course Outcome	CO1 : Understand students the fundamental aspects of the computer networks. CO2 : Explain and help students to learn fundamentals network protocols at data link layer, network layer and transport layer. CO3 : Explore students the services offered at each layer of the network protocol stack. CO4 : Train students to implement various error control, flow control, routing algorithms and security algorithms fall under data link layer, network layer and transport layer. CO5 : Explore students the concepts of Security, digital certificate, Public key Infrastructure, and similar security schemes.

Mapping between COs with PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	■							
CO2	■							
CO3	■							
CO4	■	■	■	■				■
CO5		■	■	■		■	■	■

Pre-requisite	Nil
Course Content	**Unit 1: Introduction to Data Communication** 1.1 Introduction to networks, Internet and its application 1.2 Network Structure 1.3 Network Architecture 1.4 The OSI Reference model & services 1.5 The TCP/IP Reference model and Comparison with OSI Model 1.6 Concepts of data transmission 1.6.1 Guided and unguided Transmission media. PSTN 1.7 Multiplexing & switching techniques 1.8 ISDN (Integrated Service Digital Network) **Unit 2: Data Link Layer** 2.1 MAC Sub layer 2.1.1 Multiple Access Protocols 2.1.2 Ethernet 2.1.3 LAN protocols & IEEE standards for LAN 2.1.4 Fibre Optic & Satellite networks 2.2 Data Link Layer protocols 2.3 Error detection & correction **Unit 3: Upper Layers**

	3.1 Network 3.1.1 Routing Algorithms 3.1.2 Congestion Control Algorithm 3.1.3 Internetworking 3.2 Transport Layer 3.2.1 Connection Management 3.3 Concepts of Session Layer **Unit 4: The Presentation Layer** 4.1 Data Compression Technique 4.2 Cryptography 4.3 Symmetric Key Algorithms 4.4 Public – Key Algorithms & management of Public Keys 4.5 Digital Signatures and Communications security **Unit 5: The Application Layer** 5.1 Electronic Mail 5.2 Virtual Terminals General Purpose Applications [Self Study] Virtual LAN
Reference Books	1. Networking Complete - 1st Edition 2002, BPB Publication (Text Book) 2. Data Communication and Networking: Forouzan, TMH 3. Computer Networks - A. S. Tanenbaum - Prentice-Hall 4. Computer Networks and Distributed Processing - Martin J. - Pretice-Hall 5. Local Area Networks: An Introduction - Stalling, William - Mc-Millan Publishing Co. 6. Computer Networks: Protocols, Standards and Interfaces - Black – Prentice-Hall 7. Data Networks: Concepts Theory and Practices - Black - PHI 8. N/W Architecture - Comer - Prentice-Hall
Teaching Methodology	Class Work, Discussion, Self Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment 70% External Assessment