

<b>COURSE CODE</b>	<b>COURSE TITLE</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>1154IT101</b>	<b>COMPUTER NETWORKS</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>3</b>

**PRE-REQUISITE:**

- Principles of Data communication
- Data Structure

**LINKS TO OTHER COURSES**

- Network Programming
- Information Security

**COURSE EDUCATIONAL OBJECTIVES**

- To understand the concepts of Network devices.
- To study the functions of layers.
- To understand the switching techniques in computer networking.
- To study the different forms of security.
- To make the students to get familiarized with different protocols and network components.

**COURSE OUTCOMES:**

Students undergoing this course are able to:

<b>CO Nos.</b>	<b>Course Outcomes</b>	<b>Level of learning domain (Based on revised Bloom's taxonomy)</b>
C01	Describe various modes of communication and devices	K2
C02	Illustrate the function of layers	K2
C03	Various switching formats and connecting services	K2
C04	Describe various form of security	K2
C05	Apply various protocols and explain about their applications	K3

**COURSE CONTENT**

**UNIT I Introduction**

**L-9+T-3**

Networks Applications, Network devices: Hub, Switches, Bridges, Routers, Gateways, Network card, Line configuration - point to point- Multipoint, Topology - Mesh - Star- Tree-Bus-Ring-Hybrid: Categories of Networks: LAN, WAN, MAN

## **UNIT II      Functions of layers**

**L-9+T-3**

Transmission Modes: Simplex, Half duplex, Full duplex - OSI Model - Functions of layers – Signals: Analog Signals & Digital Signals, Transmission Media: guided media- twisted pair cable, coaxial cable, fiber optic cable, un-guided media.

## **UNIT III      Switching Techniques**

**L-9+T-3**

Types of error: single bit error, Burst error , **Switching Techniques:** Circuit Switching, Packet Switching, Message Switching - Connection Oriented & Connectionless Services.

## **UNIT IV      Cryptography**

**L-9+T-3**

Presentation Layer: Translation-direct method and indirect method - encryption/decryption-conventional methods: character level encryption, bit level encryption - public key method: DES algorithm, RSA algorithm, Authentication, Data Compression.

## **UNIT V      Protocols**

**L-9+T-3**

Domain Name Space (DNS) – SMTP – FTP – HTTP - WWW –.Case Study: ATM, TCP/IP – Overview.

**TOTAL: 45+15(Tutorial) = 60 periods**

### **LEARNING RESOURCES:**

#### **TEXT BOOKS**

1. Behrouz Forouzan, “Data Communication and Networks”, McGraw Hill, 2012
2. Andrew S. Tanenbaum , Computer Networks, Prentice Hall of India,2011.

#### **REFERENCE BOOKS BOOKS**

- James F. Kurose and Keith W. Ross Pearson “**Computer Networking: A Top-Down Approach**”Addison-Wesley, Boston MA , Ó2008. ISBN 0 - 321 - 49770 – 8
- Bruce A. Hallberg” **Networking: A Beginner's Guide**” McGraw-Hill / Osborne, 2003 ISBN 0 - 07 - 222563 – 7
  - William Stallings, “Data and Computer Communication”, Eighth Edition, Pearson Education, 2007.
  - Nader F. Mir, “Computer and Communication Networks”, First Edition, Pearson Education, 2007
  - Douglas E. Comer, “Computer Networks and Internets with Internet Applications”, Fourth Edition, Pearson Education, 2003.