AP5004 HIGH PERFORMANCE NETWORKS

DETAILED SYLLABUS

OBJECTIVES

- To develop a comprehensive understanding of multimedia networking.
- To study the types of VPN and tunneling protocols for security.
- To learn about network security in many layers and network management.

UNIT I INTRODUCTION

Review of OSI, TCP/IP; Multiplexing, Modes of Communication, Switching, Routing. SONET – DWDM – DSL – ISDN – BISDN, ATM.

UNIT II MULTIMEDIA NETWORKING APPLICATIONS

Streaming stored Audio and Video – Best effort service – protocols for real time interactive applications – Beyond best effort – scheduling and policing mechanism – integrated services – RSVP- differentiated services.

UNIT III ADVANCED NETWORKS CONCEPTS

VPN-Remote-Access VPN, site-to-site VPN, Tunneling to PPP, Security in VPN.MPLS-operation, Routing, Tunneling and use of FEC, Traffic Engineering, MPLS based VPN, overlay networksP2P connections.

UNIT IV TRAFFIC MODELLING

Little's theorem, Need for modeling, Poisson modeling and its failure, Non- poisson models, Network performance evaluation.

UNIT V NETWORK SECURITY AND MANAGEMENT

Principles of cryptography – Authentication – integrity – key distribution and certification – Access control and: fire walls – attacks and counter measures – security in many layers. Infrastructure for network management – The internet standard management framework – SMI, MIB, SNMP, Security and administration – ASN.1

REFERENCES:

1. Aunurag Kumar, D. M Anjunath, Joy Kuri, "Communication Networking", Morgan Kaufmann Publishers, 1st edition 2004.

2. Fred Halsall and Lingana Gouda Kulkarni, "Computer Networking and the Internet", fifth edition, Pearson education 2006

3. Hersent Gurle & Petit, "IP Telephony, packet Pored Multimedia communication Systems", Pearson education 2003

4. J.F. Kurose & K.W. Ross,"Computer Networking- A top down approach featuring the internet", Pearson, 2nd edition, 2003

5. Larry l.Peterson & Bruce S.David, "Computer Networks: A System Approach"- 1996

6. LEOM-GarCIA, WIDJAJA, "Communication networks", TMH seventh reprint 2002.

7. Nader F.Mir, Computer and Communication Networks, first edition 2010