7th Semester

HONOURS SPECIALIZATION:

PET7D001 TELECOMMUNICATION NETWORKS AND OPTIMIZATIONS

4-0-0

MODULE-I

Network architectures – topology and hierarchy – evolution – layered architecture; Network Design Issues – application of graph theory – simplex algorithm and linear programming – binary and mixed integer linear programming;

MODULE-II

Core Networks – Routing principles – Shortest path algorithm – minimum spanning tree problem – flow control – max flow min cut theory – min cost network flow program – load balancing and optimization – congestion control .

MODULE-III

Advanced routing – Steiner trees and multicast – centralized routing (PCE), software defined network – distributed routing on ad-hoc networks, power aware MANET - reliability and route optimization.

MODULE-IV

Access Networks – Data link layer and media access control technologies – wireless and optical access – resource scheduling and optimization – Bipartite graph and stable matching algorithms – case studies (10);

ADDITIONAL MODULE (Terminal Examination-Internal)

Access core interface – case studies (5).

Text Books

1. Network Optimization by V. K. Balakrishnan
2. Linear Network Optimization: Algorithms and Codes by D. Bertsekas
3. Mathematical Aspects of Network Routing Optimization by C. A. S. Oliveira, P. M. Pardalos

Reference Books

1. Network Flows: Theory, Algorithm and Application by R. K. Ahuja, C. L. Magnanti, James B.
2. Optimization Algorithm for Networks and Graphs – vol. 1 by J. R. Evans, E. Mineka
3. Integer Programming and Network Models – H. A. Eiselt, C. L. Sandblom
4. Interconnections - R. Perlman 8. Computer Networks A. S. Tanenbaum