Course title: Computer Networks  
Offered to: Msc IT SEM II (2016 Batch) as Core course  
Course Code and Credit Structure : IT 694   3-0-2-4

1. Prerequisite:
   None.

2. Course Overview:

   This course will cover the basic principles of networking with a focus on protocols, implementations, and issues specific to the Internet. Additionally, the course will cover some detailed concepts in routing and addressing, transport protocols and congestion control, emerging distributed applications, and wireless networking. Also covered are the new concepts in networking related to Multi protocol label switching and its application. The objective is to go beyond the basic level of understanding that is typically offered at an undergraduate networking course and have a more in-depth understanding of various networking topics. Emphasis will be placed on practical applicability of all topics.

3. Learning Outcome:

   By this course the students will be able to understand more in-depth understanding of networking protocols, principles behind the Internet protocols and some application layer protocols and design, implement and test some network protocols.

4. Contents:

   Introduction to Computer Networks
   Fundamental components of a network, introduction to the Internet architecture, Data communication basics, introduction to layering in Computer networks (OSI and TCP/IP)

   Physical and Data Link layer Concepts
   Introduction to different physical media (hubs, repeaters, cables), overview of Physical layer concepts such as encoding and decoding, bits and bytes
   Data link layer and its services. Ethernet protocol, Medium Access protocols, Error Detection, Switches, Virtual LANs, ARP and RARP

   Network layer
   IP protocol, routing protocols, Intra and Interdomain routing, DHCP, ICMP, NAT

   Transport layer
   Connection and Connectionless protocols, TCP and UDP, Detailed discussions on TCP

   Application layer
Introduction to various application protocols such as HTTP, DNS, FTP, WWW etc.

5. **List of Text and Reference Books:**

6. **Evaluation**
   1. In-sem examinations 25%
   2. Labs and Hws 20%
   3. Project 20%
   4. Final Examination 35%