

CLASS: B. Sc (Information technology)		Semester - II
SUBJECT: - Data Communication and Networking Standards (USIT2P5)		
Periods per week	Lectures - 5	(3 Credits)

Unit-I	Introduction to data communications and networking Introduction, Fundamental concepts, Data communications, Protocol, standards, standard organizations, signal propagation, analog and digital signals, bandwidth of signal and a medium, Fourier analysis and the concept of bandwidth of a signal, The data transmission rate and bandwidth.	8 Lect
Unit-II	Network Models Layered Tasks, The OSI reference model , Layers in the OSI reference model , TCP/IP protocol suite , Addressing IPv4	8 Lect
Unit-III	Information Encoding , Errors Detection and Correction Introduction, Representing different symbols, Minimizing errors , Multimedia , Multimedia and Data compression. Error classification, types of errors, redundancy, detection versus correction , hamming distance , cyclic redundancy check.	8 Lect
Unit-IV	Media and Transmission modes Data and signals, Periodic analog signals, Digital signals, Transmission impairment, Data rate limits, Performance, Digital to digital, Analog to digital conversion , Transmission modes, Digital to analog conversion , Analog to analog conversion, Guided media and Unguided media	8 Lect
Unit-V	Network topologies ,Switching and routing algorithms Mesh, star, tree, ring, bus, hybrid, switching basics , circuit switching, packet switching and Message switching , routing algorithms	8 Lect
Unit-VI	IP version 6 Overview , Terminology, IPv6 addresses , Special addresses , IP v 6 header formats, IPv6 extension headers , IPv6 autoconfiguration , configuration via DHCP v6 , IPv6 transition	8 Lect

Books:

Behrouz A Forouzan, “Data communications and Networking”, Fourth Edition , Mc-Graw Hill

Achyut Godbole, “Data communications and Networks, TMH

Dr.Sidnie Feit, “TCP/IP” ,Second Edition, TMH

Reference:

W.Stallings,”Data and Computer Communications”,Eight Edition,Pearson Education

Term Work for USIT205

- i) Assignments: Should contain at least 2 assignments covering the Syllabus.
- ii) Class Tests: One. Also Known as Unit Test or In-Semester Examinations
- iii) Tutorial : Minimum Three tutorials covering the syllabus

Practical (USIT2P5):

Case Studies	3 Lectures Per Week (1 Credit)
<p>List of Cases</p> <ul style="list-style-type: none">i) Case study on implementation of TCP/IP model in different OSii) Case study on errors in data transmissioniii) Case study on transmission mediaiv) Case study on static IP addressingv) Case study on dynamic IP addressingvi) Case study on network devices: Routers, Switches, Bridgesvii) Case study on IPv6	