

Course Objectives

- Understand the fundamentals of data communication and various components of communication systems.
- Detect errors in data which occur during transmission and also correct errors using suitable error detection and correction techniques.
- Demonstrate various flow control techniques in data link layer and select suitable technique based on scenario.
- Compare the performance of media access protocols in wired and wireless channel.

Abstract

Introduction to Data Communication, Signals, Basic properties of data communication system, Nyquist rate, Shannon Capacity, Signal encoding, Modulation schemes, Transmission media, Wired and wireless transmission, Error detection and correction, Cyclic redundancy check, Hamming code, Stop and wait flow control, Sliding window flow control, Automatic repeat request, High level data Link control, Multiplexing, Media Access Sub layer and LAN, Random access protocols, Bridges.

Syllabus**Data Communication fundamentals**

Introduction to Data Communication, Signals, Digital representation of information, Basic properties of data communication system, Time and frequency domain characterization of communication channels, Nyquist signaling rate, Shannon Channel capacity, Line coding- NRZ, bipolar, Manchester, Differential Manchester encoding, Digital modulation-ASK, FSK, PSK, QAM.

[10 Hours]**Transmission Media**

Twisted pair, Coaxial cable, Optical fiber, Wireless transmission.

[03 Hours]**Error detection and correction**

Asynchronous and synchronous transmission, Error detection and correction basics, Parity check, Internet checksum, Polynomial codes, Block code, Hamming code.

[06 Hours]**Peer to Peer Protocols**

Peer to peer protocols and service models, ARQ protocols- Stop and wait, Go back N, selective repeat, Transmission efficiency of ARQ protocols, Other adaptation functions- Sliding window flow control, Timing recovery for synchronous services, Reliable stream service, Data link control- HDLC datalink control, point to point control, Multiplexing-FDM, TDM, STDM.

[11 Hours]

Principles Of Data Communication

K.V.K.K. Prasad



Principles Of Data Communication:

Data Communications Principles Richard D. Gitlin,Jeremiah F. Hayes,Stephen B. Weinstein,1992-09-30 This unique text for both the first year graduate student and the newcomer to the field provides in depth coverage of the basic principles of data communications and covers material which is not treated in other texts including phase and timing recovery and echo cancellation Throughout the book exercises and applications illustrate the material while up to date references round out the work Principles of Data Communication R. W. Lucky,J. Salz,E. J. Weldon,1968 *Principles of Data Communication*

James Martin,Joe Leben,1988 **Principles of Voice & Data Communications** Regis J. Bates,Marcus Bates,2007

Principles of Voice and Data Communicationis a technology book for the non technical student a comprehensive overview of the entire networking industry built on unrivaled real world experience With its helpful pedagogy teaching support and student friendly tone Principles of Voice and Data Communicationgives students the foundation they need to enter and succeed in the technology and communications fields *Data Communications Principles* Richard D. Gitlin,Jeremiah F.

Hayes,Stephen B. Weinstein,2012-12-06 This unique text for both the first year graduate student and the newcomer to the field provides in depth coverage of the basic principles of data communications and covers material which is not treated in other texts including phase and timing recovery and echo cancellation Throughout the book exercises and applications illustrate the material while up to date references round out the work Principles of Data Communication Robert W.

Lucky,J. Salz,1968 **Principles of Data Communication Systems and Computer Networks (Second Edition)**

K.V.K.K. Prasad,2003-07-17 A Comprehensive coverage of Digital communication Data Communication Protocols and Mobile ComputingCovers Multiplexing Multiple accesses Radio Communications Terrestrial Satellite Error Detection Correction ISO OSI Protocol Architecture Wired Internet DNS RADIUS Firewalls VPN Cellular Mobile Communication GPS CTI Wireless Internet Multimedia Communication over IP Networks *Data Communication Principles* Aftab Ahmad,2003 Data

Communication Principles for Fixed and Wireless Networks focuses on the physical and data link layers Included are examples that apply to a diversified range of higher level protocols such as TCP IP OSI and packet based wireless networks Performance modeling is introduced for beginners requiring basic mathematics Separate discussion has been included on wireless cellular networks performance and on the simulation of networks Throughout the book wireless LANS has been given the same level of treatment as fixed network protocols It is assumed that readers would be familiar with basic mathematics and have some knowledge of binary number systems Data Communication Principles for Fixed and Wireless Networks is for students at the senior undergraduate and first year graduate levels It can also be used as a reference work for professionals working in the areas of data networks computer networks and internet protocols **Review Of Digital**

Communication J. Das,2003 With The Global Trends In Communication And Data Networks Leading To Idn And Isdn There Is A Special Need For A Comprehensive Book On Thestate Of The Art In Digital Communication In The Absence Of Such A

Reference Book Most Of Our Senior Professionals And Academics Find It Very Hard To Keep Themselves Abreast Of The Recent Developments Leading To Information Revolution And Digital Revolution The Present Volume Is An Attempt To Fill This Gap The Book Consists Of Ten Chapters And Discusses Such Topics As Principles Of Digital Modulation Source Encoding Data Transmission Through Cables And Optical Fibres Digital Radio Including Satellite Communication Data Networks And Digital Switching Information Theory And Coding Survival Of Communication Including Spread Spectrum Techniques And Future Trends Including Isdn Conceptually The Chapters Attempt To Discuss From A System Point Of View A Total Digital Communication Network E G Idn And The Total Range Of Signal Processing Techniques Has Been Presented In Subsequent Chapters Thus Maintaining A Continuity Of Thought From End To End The Book Is Therefore Addressed To Both Professionals In Telecommunications And Senior Students In This Area *Principles of Data Communication* Deltak, Inc,1980

Whispering the Secrets of Language: An Emotional Quest through **Principles Of Data Communication**

In a digitally-driven world where monitors reign supreme and immediate conversation drowns out the subtleties of language, the profound techniques and psychological nuances hidden within words usually move unheard. Yet, located within the pages of **Principles Of Data Communication** a captivating fictional value sporting with fresh thoughts, lies a fantastic journey waiting to be undertaken. Composed by a skilled wordsmith, this enchanting opus invites visitors on an introspective journey, delicately unraveling the veiled truths and profound impact resonating within the material of every word. Within the psychological depths of the touching review, we shall embark upon a honest exploration of the book is primary styles, dissect their interesting writing fashion, and yield to the powerful resonance it evokes heavy within the recesses of readers hearts.

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