

GUJARAT UNIVERSITY

K. S. SCHOOL OF BUSINESS MANAGEMENT
[Five Years' (Full-time) Integrated Degree Course]

Semester-6 [M.Sc. (CA & IT)]

Subject Code: - KS_C_CC -366

**Subject Name: - Implementation of Data Communication and
Networking (Practical on CC-363)**

Course Credit: - 3

Objective:

The objective of this course is to familiarize the students with the client server programming techniques. This course will help them understand TCP/IP and UDP/IP communication techniques. The students will be able to understand different network technologies and will be able to:

- Implement Framing Techniques as well as Error Detection and Correction Techniques.
- Perform development of All Data Link Layer Protocols
- Understand and implement Symmetric & Asymmetric key algorithms.

Unit No.	Course Content	Weight-age (%)
1	Introduction to Client Server Programming (TCP sockets, UDP sockets (datagram sockets), Server programs that can handle one connection at a time and multiple connections (using multithreaded server), Implementation details- Client-Server Application.) Implementation of Framing Techniques (Multithreading, Bit Stuffing, Byte Stuffing, Character Count)	(20%)
2	Implementation of Error Detection and Correction Techniques (Single Bit Parity, Block Parity, Checksum, CRC Checksum, Hamming Code)	(20%)

3	Implementation of All Data Link Layer Protocols (Simplex Protocol, Stop & Wait Protocol, Stop & wait ARQ Protocol, Go & back ARQ Protocol, Selective Repeat ARQ Protocol)	(20%)
4	Implementation of Cryptography (using Java Security/ Cryptography Packages) (AES , DES , RSA, S-BOX and P-BOX)	(20%)
5	Implementation of Symmetric Block Ciphers (Caesar Cipher, Mono Alphabetic Cipher with Sequence and Random Key, Poly Alphabetic Cipher, Play Fair Cipher, Transposition Cipher)	(20%)

Recommended Lecture Scheme: Approximately 40 to 45 hours in a semester

Recommended Practical Scheme: Not Applicable

Assignment: Five assignments should be given.

Text Book:

1. Computer Networking
By Andrew S. Tanenbaum, Prentice Hall, Fourth Edition
2. Computer Networks
By Bhushan H Trivedi, Oxford University Press

Reference Books:

1. Java Network Programming, by Elliotte Rusty Harold (O'Reilly)
2. Advanced **Java** Networking, by Prashant Sridharan (Prentice-Hall)
3. Beginning Cryptography with Java
By David Hook, Wrox/ Wiley-Dreamtech Publications, Special Indian Edition (2005)
4. Java Cryptography
By Jonathan Knudsen, O'Reilly Publishers, First Edition (1998)