## THIRUVALLUVAR UNIVERSITY

### MASTER OF SCIENCE

### DEGREE COURSE

### M.Sc. INFORMATION TECHNOLOGY

### UNDER CBCS

(with effect from 2008-2009)

**The Course of Study and the Scheme of Examinations**

<table>
<thead>
<tr>
<th>Year / Semester</th>
<th>Subject</th>
<th>Paper</th>
<th>Title of the Paper</th>
<th>Ins. Hrs/ Week</th>
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### M.Sc. Information Technology: Syllabus (CBCS)

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THIRUVALLUVAR UNIVERSITY
M.Sc. INFORMATION TECHNOLOGY
SYLLABUS
UNDER CBCS
(with effect from 2008-2009)
I SEMESTER
PAPER I
PRINCIPLES OF COMMUNICATION SYSTEM

Objective
The aim of this paper is to introduce the principles of communications, digital communications, and data communications.

UNIT-I

UNIT-II
Analog Modulation Systems: Basic principles of AM, FM, and PM - Spectra, power consideration, receiver’s characteristics and deduction of AM, FM and PM systems performance - Threshold effects reduction.

UNIT-III
UNIT-IV
Digital Modulation: Digital modulation - Coherent binary modulation techniques - Coherent quadrature modulation techniques - Non-coherent binary modulation - M-array modulations - Performance of digital modulation systems based on probability of error, bandwidth, and ISI.

UNIT-V
Spread Spectrum Techniques: Fundamental concepts - Direct sequenc spread spectrum - Frequency hopping spread spectrum.

Text Books

References
PAPER II
DATA STRUCTURES USING C

Objective
The essential goal is to acquire skills and knowledge in imperative programming and data structures.

UNIT-I
Introduction to C Programming language: Programming in C - data types, operators, hierarchy and associativity, expressions, control structures. Functions - Structure of a C program - Preprocessing - Arrays, structures and unions - Pointers - Pointers to arrays - Structures and functions - Storage class initialization.

UNIT-II
Introduction to Data Structures: Introduction - The Stack: Definitions and examples - Representing Stacks in C - Examples: infix, Postfix, and Prefix.

UNIT-III
Queues and Lists: Queue and its sequential representation - Linked list - List in C - Examples - Other list Structures.

UNIT-IV
Trees: Binary trees - Binary Tree representations - Huffman Algorithm - Representing lists as Binary Trees - Trees and their applications - Game Trees.

UNIT-V
Text Books


References

1. Lipschutz - Data Structures (Special Indian Edition) 2006, TMH, New Delhi
3. Ellis Horowitz, Sartaj Sahni, Fundamentals of Data Structures, Galgotial,
PAPER III
DATA BASE MANAGEMENT SYSTEM

Objective
The primary goal of this subject is to provide the complete knowledge on the object-oriented approach of databases. This serves the skill on Functional Dependencies, Normalization and data base design. It provides the complete set of administration tools on databases.

UNIT-I

UNIT-II
UNIT-III

UNIT-IV

UNIT-V
Basic interface Mechanisms for Logic Programs - Datalog - Programs and their Evaluation - Deductive Database Systems - Deductive Object - Oriented Databases - Applications of Commercial Deductive Database Systems.

Text Books

References
ELECTIVE

PAPER I

(to choose either A or B)

A) COMPUTER ARCHITECTURE

Objectives
Know and understand the main components of a computer system and the considerations in their design. Know and understand performance measures, as well as their impact on system architecture. Understand the interplay among system components such as design trade-offs.

UNIT-I
Basic structure of computer hardware and software - Addressing methods and machine program sequencing - Computer arithmetic - logic design for fast adders - multiplication - Booth’s algorithm - Fast multiplication - integer division - floating point number representation - floating point arithmetic.

UNIT-II
Control unit - instruction execution cycle - sequencing of control signals - hardwired control - PLAs - micro programmed control - control signals - microinstructions - micro program sequencing - Branch address modification - Prefetching of micro instructions - emulation - Bit slices.

UNIT-III
Memory organization-Semiconductor RAM memories - internal organization - Bipolar and MOS devices - Dynamic memories - multiple memory modules and interleaving - cache memories - mapping functions - replacement algorithms - virtual memory - address translations - page tables memory management units - Secondary memory - disk drives - organization and operations - different standards.
UNIT-IV

UNIT-V
Introduction to parallel organizations - multiple processor organization - symmetric multiprocessors - cache coherence - non uniform memory access - vector computation - introduction to CISC and RISC - Architectures - Comparison.

Text Books

Reference Books
B) DISCRETE MATHEMATICS

1. 

2. Objective

3. The Objective of this subject is:
   - to understand the concepts of sets, proposition, permutation and combinations.
   - to familiarize in relations, digraphs and functions, trees, groups and coding.
   - to help the students for developing the fundamental mathematical knowledge.

UNIT-I


Logic: Propositions and Logical operations - Conditional Statements - Methods of Proof - Mathematical Induction.


UNIT-II

Relations and Digraphs: Product Sets and Partitions - Relations and Digraphs - Paths in relations and Digraphs - Properties of relations - Equivalence Relations - Computer Representation of relations and Digraphs - Manipulation of Relations - Transitive Closure and Warshall’s Algorithm.

UNIT-III

Functions: Functions - Permutation Functions - Growth of Functions Topics in Graph Theory: Graphs - Euler Paths and Circuits - Hamiltonian Paths and Circuits - Coloring Graphs
UNIT-IV

Order Relations and Structures: Partially Ordered Sets - External Elements of Partially Ordered Sets - Lattices - Finite Boolean Algebras - Functions on Boolean Algebras - Boolean Functions as Boolean Polynomials.


UNIT-V

Semigroups and Groups: Binary Operations Revisited - semigroups - Products and Quotients of Semigroups - Groups - Products and Quotients of Groups. Groups and coding: Coding of Binary Information and Error Detection - Decoding and Error Correction

Text Books

References
Objective
To learn what an operating system is, what its role in a computing system is, how operating systems have evolved over time, and what the various components of an operating system are and how they work. Several real operating system case studies help to understand how the principles studied are used in practice. The role of an operating system in a distributed system is also to be studied.

UNIT-I

UNIT-II

UNIT-III
Memory Management: Background - Swapping - Contiguous Memory Allocation - Paging - Segmentation - Segmentation with paging - Virtual Memory: Demand paging - Page Replacement - Thrashing.
UNIT-IV

UNIT-V

Text Books

Reference Books
M.Sc. Information Technology: Syllabus (CBCS)

PAPER V

DATA COMMUNICATION NETWORKS

Objectives
Understand the challenges of network communication. Understand the basics of network communication. Understand the operation of the protocols that are used inside the Internet.

UNIT-I

UNIT-II
Network Layer: Circuit Switching - Packet Switching - Switching and Forwarding - Bridges and LAN Switches - Cell Switching - Inter networking - Routing - Global Internet - Multicast.

UNIT-III

UNIT-IV

UNIT-V
Text Books


Reference Books


PAPER VI

OBJECT ORIENTED PROGRAMMING USING JAVA

Objective
The course focuses on development of skills such as program design and testing using object oriented programming concept as well as the implementation of programs Java.

UNIT-I
Object Oriented Programming: Abstract Data Type (ADT), Encapsulation, Object, Message, Method, Class, Inheritance, Late Binding Polymorphism, Virtual Functions, Abstract Classes, Interface, Generic Classes and Interfaces, Constructors and Destructors, Overloading and Overriding, Copy Constructor.

UNIT-II
JAVA Basics: Importance and features of java, Modifiers, Access Controls, Data types, Expressions, Declarations, Statements and Control Structures, Program Structures, String handling, Packages, Interfaces, Working with java.util Package, Garbage Collection, Object Class.

UNIT-III
Exception Handling, I/O and JDBC: Exception Handling: Fundamentals exception types, uncaught exceptions, throw, throw final, built in exception, creating your own exceptions. Input Stream and Output Stream: Streams, Byte and Character stream, Predefined streams, Reading and Writing from Console and Files, Buffered Reader and Writer, Serialization, Data Compression, Using Standard Java Packages (lang, util, io, net)
Database: JDBC Architecture, JDBC Basics, JDBC Drivers, Connecting to Database and accessing databases

UNIT-IV
UNIT-V
Multithreading and Communication: Java Thread Model: Priorities, Synchronization, Messaging, Life Cycle of Thread, Thread class, Runnable interface, Interthread Communication, Suspending, Resuming and Stopping threads Multithreading, Synchronization, Scheduling and Priority of Threads, Sockets, Types of Sockets, Working with URLs, Web browsers and Handlers

Text Books

References
CORE PRACTICAL I

DATA STRUCTURES AND DBMS LAB

Objective
To familiarize the concepts learned in data structures and DBMS.

DATA STRUCTURE USING C

Array implementation
String Manipulation
Sorting and Searching
Linked List
Stacks and Queues
Trees and Graphs

DBMS

1. Study of all SQL commands
2. Implement the concept of Normalization
3. Implement the inventory control system with a reorder level
4. Develop a package for a bank to maintain its customer details
5. Develop a package for the payroll of an organization
CORE PRACTICAL II

NETWORK PROGRAMMING AND JAVA LAB

Objectives
To familiarize the concepts learned in Network and Java. Programs for various Network functions can be written using Java.

Network Programming

1. Retrieving data with URLs
2. Implementation of Socket Programming
   a. Using TCP/IP
   b. Using UDP
3. Implementation of FTP
4. Implementation of ECHO/PING/TALK
5. Implementation of Remote command Execution
6. Implementation of ARP
7. Implementation of RARP
8. Implementation of RMI / RPC
9. Implementation of Shortest Path Routing Algorithm
10. Implementation of Sliding Window Protocol

Java Programming

1. Simple programs to familiarise concepts in Java.
2. Write a Java program using Applet to display any 3 images when 3 buttons in the Border layout are clicked. The image should be displayed at the center.
3. Write a Java program using Applet to display the dialogue and menu in applet.
4. Write a Java program using Applet to create the frames and its controls.
5. Write a Java program using Applet to display the different colors and fonts.
6. Write a Swing program to create Buttons with
   a) Tool tip text    b) Image    c) Border    d) Short cut Key
7. Write a Swing program to create the Tabbed Panels.
8. Write a Java program to create a color as the background.
HUMAN RIGHTS
COMPULSORY PAPER

UNIT-I

UNIT-II

UNIT-III

UNIT-IV

UNIT-V


Books for Reference:

2. Human Rights, Questions and Answers, UNESCO, 1982
3. Mausice Cranston - What is Human Rights
4. Desai, A.R. - Violation of Democratic Rights in India
5. Pandey - Constitutional Law.
7. Human Rights, A Selected Bibliography, USIS.
9. G.S. Bajwa - Human Rights in India.
10. Amnesty International, Human Rights in India.

Magazines:

1. The Lawyer, Bombay
2. Human Rights Today, Columbia University
3. International Instruments of Human Rights, UN Publication
ELECTIVE
PAPER II
(to choose either A or B)

A) SOFTWARE ENGINEERING

Objective
The objective of this subject is to make the student familiar with the principles, management and practical methodology followed in any software engineering project development, its implementation and maintenance.

UNIT-I

UNIT-II

UNIT-III

UNIT-IV
UNIT-V

Text Book

References
Objective
By the end of the course the student should have:

- a background in electronic commerce as it affects small and medium sized businesses (SMEs)
- an understanding of how you can develop and implement an E-commerce strategy for your business
- an E-commerce business plan based on the adoption of a selected E-commerce strategy.

UNIT-I

UNIT-II
Core Technology: Electronic Commerce Models - Shopping Cart Technology - Data Mining - Intelligent Agents - Internet Marketing - XML and E-Commerce.

UNIT-III

UNIT-IV

UNIT-V
Text Book

Reference Books
III SEMESTER
PAPER VII
TELECOMMUNICATION SWITCHING TECHNIQUES

Objective
The objective of the course is to impart theoretical and practical knowledge of the present day telecommunication switching systems and data networks. Topics ranging from the electromechanical switching systems to the voice and data integration systems will be covered. Design of space and time division switching systems will be discussed. The course also deals with data and ATM networks.

UNIT-I
Evolution of Telecommunication Switching And Circuit: Evolution of Public Switched Telecommunication Networks Strowger exchange, Crossbar exchange, Stored program exchange Digital exchange - Basic Telecommunication equipment - Telephone handset, Hybrid circuit, Echo suppressors and cancellers, PCM coders, Modems and Relays.

UNIT-II
Electronic Switching: Circuit Switching, Message switching, Centralized stored program switching, Time switching, Spare switching, Combination switching - Digital switching system hardware configuration, Switching system software, Organization, Switching system call processing software, Hardware software integration.

UNIT-III
Telecommunication Signaling and Traffic: Channel associated signaling, Common channel signaling, SS7 signaling protocol, SS7 protocol architecture, Concept of Telecommunication traffic, Grade of service, Modeling switching systems, Blocking models and Delay systems.

UNIT-IV
Integrated Digital Networks: Subscriber loop characteristics, Local access wire line and wire less PCM / TDM carrier standards transmission line codes, Digital

UNIT-V

Text Book

References
PAPER VIII

INTERNET PROGRAMMING

Objective

Upon completion of the course the student will be able to:

- Write client-side JavaScript programs for executing in a Web browser.
- Do basic HTML design using colors, images, tables, frames, and GUI components such as text boxes, buttons, menus, checkboxes, and radio buttons and develop interactive Web applications that integrate HTML with JavaScript using event handlers.
- Explain control structures, functions, and arrays, and illustrate how they are used to create JavaScript programs. Also discuss object-oriented programming and the Document Object Model, built-in and custom objects.
- Create JavaScript applications that use cookies to track and save Web preferences.

UNIT-I


UNIT-II

Dynamic HTML: Dynamic HTML Object Model and Collections, Event Model, Filters and Transitions, Data Binding with Tabular Data Control, Dynamic HTML-Structured Graphics ActiveX Controls, Dynamic HTML-Path, Sequencer and Sprite ActiveX Controls.

UNIT-III

JavaScript: JavaScript, Introduction to Scripting, Control Statements, Functions, Arrays, Objects.
UNIT-IV
XML: Creating Markup with XML - Parsers and Well-formed XML Documents - Parsing an XML Document with msxml - Document Type Definition (DTD) - Document Type Declaration - Element Type Declarations - Attribute Declarations - Document Object Model - DOM Implementations - DOM Components - path - XSL: Extensible Stylesheet Language Transformations (XSLT)

UNIT-V
PERL, CGI AND PHP: Perl - String Processing and Regular Expressions - Form Processing and Business Logic - Server-Side Includes - Verifying a Username and Password - Using DBI to Connect to a Database - PHP - Form Processing and Business Logic - Connecting to a Database - Dynamic Content in PHP

Text Books

References
Objective

The objective of this subject is to provide complete understanding of the theoretical aspects of computer graphics. It provides details of algorithms which facilitate implementation of both 2D and 3D graphics and good understanding of graphics modeling and user interface designs.

UNIT-I

Introduction and Hardware: Representative uses of computer graphics - vector display and raster display architectures - display processor - interactive input devices - output primitives - software portability and graphics standards - conceptual framework for interactive graphics.

UNIT-II

2D graphics: Basic raster graphic algorithms for 2D primitives - scan converting lines - circles - ellipses - filling rectangle - character generation - 2D transformations - 2D clipping - windowing transformation.

UNIT-III

3D graphics: 3D representation methods - 3D transformations - viewing and projections - parallel and perspective projections - hidden line elimination - hidden surface elimination.

UNIT-IV

Graphics Modelling: Curves, Surface and solid modeling - colour model - ray tracing methods - graphic file formats.

UNIT-V

User interface design: Interactive handling models - Input and Output handling window systems.
Text Books


References


ELECTIVE
PAPER III
(to choose either A or B)

A) SIGNALS AND SYSTEMS

Objective
Provides an introduction to continuous-time and discrete-time signals and linear systems. Topics covered include time-domain descriptions (differential and difference equations, convolution) and frequency-domain descriptions (Fourier series and transforms, transfer function, frequency response, Z transforms, and Laplace.

UNIT-I

UNIT-II

UNIT-III
UNIT-IV

UNIT-V
Noise: White noise, Narrow band noise, effective noise temperature and noise figure representation Sinewave contaminated with narrow band noise. Effect of noise in Linear modulation systems AM, SSB, DSBSC. Effect of noise in angle modulation, threshold effect and threshold extension, pre- emphasis and de-emphasis filtering.

Text Books
1. Openheim and Wilsky, Signals and Systems, PHI/ Pearson Education.
3. Proakis & Salehi, Communication Systems Engineering, LPEA.

References
7. S S Soliman, M D Srinath, Continuous and Discrete Signals and Systems, PHI.
B) MULTIMEDIA SYSTEMS

Objective
Provides a basic understanding of the fundamental issues and problems in the representation, manipulation, compression, and delivery of multimedia content such as images, audio and video, particularly in a networked environment.

UNIT-I

UNIT-II

UNIT-III
Media Software: Basic tools - Image editing tools - Painting and drawing tools - Sound editing programs - Video formats - Quick time - Linking Multimedia objects - OLE and DDE - Office suites - Presentation tools - Authoring tools.

UNIT-IV
Multimedia Building Blocks: Text - Sound - Images - Animation - Video.

UNIT-V
Multimedia Applications: Multimedia and single user - Multimedia on networks.

Text Books
References

ELECTIVE
PAPER IV
(NON MAJOR SUBJECT)
PROGRAMMING IN C

UNIT-I

UNIT-II
Overview of C data types - Operators and Expression - History in C - Basic structure of C Programs - Execution of C Program - Sample of C Programs - Character Set - C Tokens - Key works and Identifiers - Constants, Variables Declaration of Variables - Assigning Values to variables - data types - symbolic constants - operators - expressions - evaluation of expressions - precedence of operators - type conversions in expressions - associativity and precedence - I/O operations – Simple programs

UNIT-III
Control flow and arrays: Reading and writing a character - Formatted input and output - Control Statements: if - Switch - Conditional operator - go to - Loop statements: While - do - for - break statement - continue statement - arrays: One dimensional arrays - declaration and intialisation of arrays - two dimensional arrays - multidimensional arrays - string handling functions - Application Programs in Computer Science and Life Science.

UNIT-IV
Functions, structures, unions and pointers: Need for user defined functions - The form of C functions - Return values and their types - calling a function - category of functions - Recursion - functions with arrays - Structures; Structure definition and initialization - Arrays of structures - structure and functions - unions - pointers - understanding pointers - declaring and
initializing pointers - pointer expressions - pointers and arrays - pointer and functions - dynamic memory allocation.

UNIT-IV
File management and preprocessor: Defining a file - opening and closing a file - Input/Output operations on files - error handling during I/O operations - random access to files - Preprocessor - Macro substitution - file inclusion - compiler control directives - command line arguments.

Text Book:

Reference Books:
IV SEMESTER

PAPER X

RESEARCH METHODOLOGY

Objectives

- To enhance the spirit of data processing.
- To classify the data and achieve accuracy.
- To acquire knowledge in the analysis of data.

UNIT-I

Data Processing: Methods of collecting data - Conducting enquires to collect primary data - Sources of Secondary data - Preparation of Schedules - Questionnaires - pre testing and pilot study - Interview Method of enquiry - Editing and Coding the data - Types of research - Different types and their applications.

UNIT-II

Sample Experimentation: Sample surveys - Random Samples - Systematic Samples - Multi stage sample - principles and planning of experiments - presentation of data.


UNIT-III

Probability Analysis: Probability - Rules of probability and its application - Normal and bi-normal - Their properties - Importance of distribution in research studies - Tests of significance - Large & small samples - Analysis of various applications.

UNIT-IV

UNIT-V

Interpretation and report writing: Meaning of interpretation - Technique of interpretation - Precautions in interpretation - Significance of report writing - Different steps in writing report - Layout of the research report - Types of reports - Oral presentation - Mechanics of writing a research report - Precautions for writing research reports - Bibliography.

Text Book

Reference
CORE PRACTICAL III
INTERNET PROGRAMMING AND GRAPHICS LAB

Objective
To implement the concept learned in internet programming and make familiarize with the creation of web based applications.

1. Creating a web page with cascading style sheets and Embedded style sheets.
2. Create a web page with the following.
3. Order form using HTML form elements
4. Validate the details in client side by using Java script
5. Design a web page to perform screen saver animations using Java script
6. Design a web page to display the text file contents using data binding concepts in DHTML.
7. Design a HTML Editor using Java applet.
8. Design a web page for library Management using Java applet and JDBC.
9. Write a Java RMI program to copy a text file from server to client.
10. Design a web page to conduct On-line Quiz using Java server pages.
11. Write a servlet program to do the following.
12. Set the URL of another server.
13. Display the header details during request of a page.
14. Display response header as well as contents during response from the server.
15. Design a web page to demonstrate session tracking Management using Java servlet.

Graphics Lab
1. To implement line drawing algorithms.
2. To implement various transformation schemes.
3. To implement polygon drawing algorithms.
4. To implement line clipping algorithms.
5. To implement polygon clipping algorithms.
6. To implement text clipping algorithms.
CORE PRACTICAL IV

VISUAL PROGRAMMING LAB

Objectives

The students will acquire knowledge on software development using the visual programming languages. This course concentrates on the development of software systems in Visual Basic and Visual C++.

Visual Basic

1. Write a VB project that receives a year number from a text box and month name from list box and displays number of days in the given month. Take care of leap years. Use Lost Focus event for list box.

2. Write a VB project that stores 10 employee records with fields EMPNO, NAME, AGE, SEX and SALARY, in an array. Display data fields in text boxes and provide command buttons to move to desired record.

3. Write a VB project that receives a foreign currency value selected from a list box and converts it into equivalent Indian rupees. (e.g. USD 42.45, Sterling 71.30, D.Mark 25.52, SW Franc 31.58, Saudi Riyal 11.40, French Franc 7.60, UAE Dhiram 11.55, Kuwait Dinar 140.56)

4. Write a VB project using control array that creates a scientific calculator with appropriate command buttons. Include the following capabilities for the calculator: +, -, *, /, %, power, square root, square and log (base 10).

5. Write a VB project to create a screen saver that displays a list of pictures with 1 second pause in between successive pictures.

6. Write a VB project for commercial bank operations using SB account database, with the following features:

   1. ADD NEW ACCOUNT
   2. DEPOSIT AMOUNT
   3. WITHDRAW AMOUNT (with minimum balance condition)
   4. Calculate simple interest and update balance taking average of last 6 month balance in the account.
   5. CLOSE ACCOUNT.
7. Write a VB project using built-in Ax control (Rich Text Box), develop the windows NOTEPAD-like editor with File and Edit menus and also display the floating menu whenever necessary.

8. Write a VB project for a Blood Bank that maintains a list of donors with address and their blood group. Provide the following reporting features:
   i) Search and display the address of a particular donor, given the name in a text box.
   ii) Display all the donors (using data report)
      a) in age group 20-30.
      b) in particular city.
      c) with particular blood group.
      d) male donors with particular blood group
      e) female donors with particular blood group.

9. Write a VB project using Ax DLL or EXE add a class module that would perform the following functions:
   a) Test whether the given number is perfect or not
   b) Whether the given number Armstrong or not
   c) Find the factorial of the given number
   d) sum of digits

10. Write a VB project using ActiveX control to create a Textbox that accepts only numeric value. Provide the following properties for the textbox: BackColor, Forecolor and Text.

Visual C++

1. Write Visual C++ win32 application program using MFC that creates a new font.

2. Write Visual C++ win32 application program using MFC that displays a message "Hello Good Morning!" wherever the user clicks the mouse button on the client area.

3. Write Visual C++ win32 application program using MFC that allows the user to draw pictures with the help of mouse as a free hand drawing tool.
4. Write Visual C++ win32 application program using MFC that creates a list box and displays name of the states in India.

5. Write Visual C++ win32 application program using MFC that displays line, rectangle, rounded rectangle, ellipse and polygon filled with colors.

6. Write Visual C++ win32 application program using MFC that fills the background of the client area with a bitmap.

7. Write Visual C++ win32 application program using MFC that displays a menu. Choose the menu items using keyboard accelerator keys and display appropriate messages for the selected command, in message box.

8. Write Visual C++ win32 application program using MFC that displays the status of ALT, CTRL, SHIFT, NUM LOCK and SCROLL LOCK keys.

9. Write Visual C++ win32 application program using MFC that displays current mouse coordinates in status bar.

10. Write Visual C++ win32 application program using MFC that creates two push buttons OK and CANCEL on the client area. Buttons should respond to user click over them and display appropriate message.
A) OPTICAL AND SATELLITE COMMUNICATION

Objective
This course is devoted to the analysis and design of a general optical and satellite communication link. Students will understand hardware and performance capabilities and limitations of modern optical and satellite communications.

UNIT-I
Optical Fibers, Sources and Detector: Structure, wave guiding and characteristic modes and configuration, group velocity, dispersion, mode coupling, single mode fiber design - Laser Diodes, light emitting diodes, modal, partition and reflection noise, power coupling, splicing, connectors, PIN - Diode, avalanche photo-diodes. Detector response time.

UNIT-II

UNIT-III
Communication Satellite - Orbit and Description: Orbital period and velocity, effects of orbital inclination, coverage angle and slantrange, placement of satellite in a geo-stationary orbit, Satellite description - Communication subsystems, telemetry, command and ranging subsystems, attitude control and electrical power.

UNIT-IV
Earth Station: Earth station antenna types, gain and radiated power, pointing loss, noise temperature, G/T ratio, high power amplifiers, redundancy
configurations, carrier and power combining, low noise amplifiers - redundancy configuration and non-linearity, up converter and down converter - conversion process, hopping and redundancy configurations.

UNIT-V

Text Books

Reference Books
B) NETWORK SECURITY

Objective
The goal of the course is to provide students with a foundation allowing them to identify, analyze, and perhaps solve network-related security problems in computer systems. The course covers fundamentals of number theory, authentication, and encryption technologies, as well as the practical problems that have to be solved in order to make those technologies workable in a networked environment, in particular in the wide-area Internet environment.

UNIT-I

UNIT-II

UNIT-III

UNIT-IV

UNIT-V

Text Book
References

PROJECT WORK
DISSERTATION AND VIVA VOCE

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