

**INTERNET TECHNOLOGY AND WEB SERVICES****CODE IT 301****L T P**  
2 -- 2**RATIONALE**

This subject covers the issues related to Internet Engineering like Internetworking design concept, Ipv4, Ipv6, Multimedia supported Network and OS. The last unit is concerned with web programming to develop the web programming skill of the students. This unit having the introduction of the latest programming segment of the web technology, which makes the students valuable in web-based programming profession.

**CONTENTS****1. Introduction:**

- 1.1 Concept of internetworking
- 1.2 Elements of internetworking
- 1.3 Elements of multimedia supported network
- 1.4 Architecture of intranet
- 1.5 Resource requirement for intranet
- 1.6 Essential components of intranet

**2. Active Server Pages (ASP):**

- 2.1 Introduction
- 2.2 How active server pages work
- 2.3 Client-side scripting versus server-side scripting
- 2.4 Using personal web server or internet information server
- 2.5 A simple ASP example
- 2.6 Server-side active X components
- 2.7 File system objects
- 2.8 Session tracking and cookies
- 2.9 Accessing a database from an active server page

**3. Web Servers (PWS/ IIS/ Apache) :**

- 3.1 Introduction
- 3.2 Microsoft personal web server overview
- 3.3 Publishing, Preparing application on PWS
- 3.4 Microsoft internet information servers (IIS)
- 3.5 Apache web server overview

**4. Multimedia Networking:**

- 4.1 Standard Capability
- 4.2 Voice over net
- 4.3 Video over net
- 4.4 Multimedia supported LAN and WAN
- 4.5 Multimedia supported OS
- 4.6 Internetworking support in various OS
- 4.7 Security issues

**5. Web Services Protocols**

- 5.1 Simple Object Access Protocol (SOAP),
- 5.2 Universal Description Discovery and Integration (UDDI)
- 5.3 Web Services Description Language (WSDL)
- 5.4 UDDI Registry
- 5.5 Create and Search for Web Services

## PRACTICALS

1. Preparing internet web side using ASP.
2. Installation web server (PWS/Apache/ IIS).
3. Creating, Publishing web application using web server.

### REFERENCE BOOKS :

- |  |  |
|--|--|
| 1. Internet and world wide web how to program                  | H.M. Deitel. P.J. Deitel & T.R. Nieto, PEA |
| 2. The whole Internet  | Conner & Krol (ORA)                        |
| 3. Data Communications and Networking,                         | Behrouz A Forouzan, Tata McGraw Hill       |
| 4. Web Technologies – A Computer Science Perspective,          | Jeffrey C Jackson, Pearson Education       |
| 5. Web Technologies – TCP/IP Architecture and Java Programming | Achyute S Godbole and Atul Kahate, TMH     |

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## PROGRAMMING IN JAVA

**CODE IT 302**

L	T	P
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### RATIONALE

The aim of this course is to provide adequate knowledge about object oriented concept. Java is an object-oriented programming language with a built-in application programming interface (API) that can handle graphics and user interfaces and that can be used to create applications or applets. Because of its rich set of API's, its platform independence, Java can also be thought of as a platform in itself. . The target of Java is to write a program once and then run this program on multiple operating systems. This course introduces the structure, syntax, and programming paradigm of the Java language and platform. One can learn the Java syntax that are most likely to encounter professionally and Java programming idioms used to build robust, maintainable Java applications.

### 1. Principles of Object Oriented programming :

- 1.1 Introduction
- 1.2 Object Oriented Paradigm
- 1.3 Basic Concepts Of Object Oriented Programming  
Object and Classes, Encapsulation, Inheritance, Polymorphism,
- 1.4 Benefits of OOP
- 1.5 Applications of OOP

### 2 An Introduction to JAVA :

- 2.1. Brief History
- 2.2 Java Features
- 2.2. Source File, Java Tokens, Java Statements
- 2.3. Compiling and Running Java Programs

### 3 Language Basics :

- 2.1 Primitive Data Types, Constants, Variables, Integer, Floating, Character, Boolean Type, Declaration and Scope of variables
- 2.2. Arrays, Type Casting, Strings : 1 D Array, 2 D Array, Sting Arrays, String Methods, String Buffer Class
- 2.3 Operators and Expressions : Assignment, Arithmetic, and Unary Operators ,Logical, Relational, and Conditional Operators Arithmetic expressions, Precedence of Arithmetic Expressions, Operator Precedence and Associativity
- 2.4 Control Statements: Selection, Iteration, break, continue

### 4 Classes, Objects, Methods and Constructors :

- 4.1 Classes : Declaring Classes, Member Variables, Defining Methods,
- 4.2 Objects: Creating and Using Objects

- 4.3 Constructors: Providing Constructors for Classes Passing Information to a Method or a Constructor ,THIS
- 4.4 Method Overloading Static Members, Final Variable, Methods and Classes
- 4.5 Garbage Collection: finalize Method Modifiers: Access Modifiers, Other Modifiers

## 5. Inheritance :

- 5.1 Extending a class
- 5.2 Defining a class, Super keyword
- 5.3 Multilevel Inheritance
- 5.4 Method Overriding, Abstract and final Classes,
- 5.4 Visibility Control

## 6. Interfaces and Packages :

- 6.1 Interfaces: Defining, Extending and Implementing
- 6.2 Packages: Introduction, Defining and creating
- 6.3 Access Protection

## 7 Exception Handling and Multithreaded Programming :

- 7.1 Exceptions: Introductions, Exceptions types,
- 7.2 Syntax of Exception Handling, Using try and catch, throw, throws, and finally
- 7.3 Creating a Thread: Introduction, Implementing and Extending Threads,
- 7.4 Life Cycle of a Thread

## 8 Introduction to I/O Files and JDBC :

- 8.1 Reading Writing and Console I/O
- 8.2 Integer, Float, String class
- 8.3 Streams: stream Classes,Byte,Character, stream classes,Creation of files
- 8.4 JDBC: Introduction, Connection, Driver Manager, Statement, Result Set

## PRACTICALS

1. Practice for compiling and running simple Java Programs
2. Practice for using java basics
3. Practice for creating simple class and its objects
4. Practice for creating methods and constructors.
5. Practice for static classes and methods
6. Practice for extending class
7. Practice for creating and using Abstract Class
8. Practice for creating and using of Interfaces and Packages
9. Practice for creating and using Exception Handling
10. Practice for creating and using Threads
11. Practice for managing I/O files
12. Practice for JDBC

## REFERENCES BOOKS :

1. Programming with Java by E BaLaguruswamy , TMH
2. The Complete Reference Java 2 Herbert Schildt, TMH
3. Thinking in Java Bruce Eckel

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**UNIX, SHELL PROGRAMMING AND ADMINISTRATION**

**CODE IT 303**  
CS 303

**L T P**  
2 -- 2

**RATIONALE**

The popularity of UNIX at educational, research and govt. institutions, and eventually in commercial world is due to its early advantages. UNIX operating is written in high level language is distributed in source form, and provides powerful operating system primitives on an inexpensive platform. The subject is intended to explore the features like file system, commands, vi editor, features of shell, shell programming and essential system administration.

**CONTENTS****1. UNIX An Introduction :**

- 1.1 Unix Architecture
- 1.2 Features of UNIX
- 1.3 Command structure and usage

**2. File System :**

- 2.1 Basics of file
- 2.2 Structure of file systems
- 2.3 File permission
- 2.4 File ownership
- 2.5 Inodes
- 2.6 Partition

**3. UNIX Commands :**

- 3.1 File management commands : **ls, cat, rm, mv, cp, chmod, cmp, diff, comm**
- 3.2 Directory management commands : **mkdir, rmdir, cd, pwd**
- 3.3 General purpose utilities : **more, ps, wc, printf or echo, lp, banner, bc , cal, date, time, who, man, kill**

**4. vi Editor :**

- 4.1 Three modes
- 4.2 Input mode, Adding and replacing text
- 4.3 Saving text and quitting – The ex mode
- 4.4 The repeat factor
- 4.5 Command mode
- 4.6 Using operators in deleting and copying text
- 4.7 Navigation
- 4.8 Pattern search
- 4.9 Joining lines
- 4.10 Undo, Repeating the last command
- 4.11 Moving text from one file to another file
- 4.12 Search and replace

**5. UNIX Shell :**

- 5.1 Different types of UNIX shell
- 5.2 Shell interpretive cycle
- 5.3 Command line structure
- 5.4 Meta character, Pattern matching
- 5.5 Escaping , quoting
- 5.6 I/O Redirection
- 5.7 Command arguments and parameters
- 5.8 Command substitution
- 5.9 Shell variables

**6. Shell Programming :**

- 6.1 Shell Script
- 6.2 Dot command
- 6.3 Interactive execution (read)
- 6.4 Command line arguments (\$1, \$2 etc)
- 6.5 The && and || operators
- 6.6 Conditional statements : if , case
- 6.7 Loops : for, while, until
- 6.8 Shell function
- 6.9 Interrupt handling (trap)

**7. Essential System Administration :**

- 7.1 System Administration jobs
- 7.2 Finding files
- 7.3 Mounting file system
- 7.4 File system checking
- 7.5 Compressing files
- 7.6 Backing up files (tar, cpio)
- 7.7 User management (add user, modify user ,remove user and change password)
- 7.8 Understanding /etc/passwd, /etc/shadow, /etc/inittab

**PRACTICALS**

**Note :** Following practicals are perform by using UNIX / LINUX operating system.

- 1. Installing UNIX/LINUX operating system
- 2. Practice for login, logout, and shutdown operations
- 3. Practice for Unix commands
- 4. Practice for vi editor
- 5. Practice for shell programs using conditional, looping instructions and shell features
- 6. Practice for finding files
- 7. Practice for user management
- 8. Practice for file system checking
- 9. Practice for Compressing file
- 10. Practice for user authentication and access rights

**REFERENCE BOOKS :**

- |                                      |                        |
|--------------------------------------|------------------------|
| 1. UNIX Concepts & Applications      | Sumitabha Das, TMH     |
| 2. The UNIX Programming Environments | Kernighnan , Pike, PHI |
| 3. Design of UNIX Operating System   | Bach , PHI             |
| 4. Unix shell programming: A level   | Satish Jain, BPB       |
| 5. Essential System Administration   | Eleen Frisch, O'Reilly |
| 6. UNIX Shell Programming            | Yashwant Kanitker      |

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**MOBILE & WIRELESS COMMUNICATION****CODE IT 304****L T P**  
2 1 --**RATIONALE**

The course introduces the requirement, technologies & advantages of sharing information for mobile users. The course covers wireless communication, cellular telephony & mobile computing to give the insight in these emerging technologies. The cutting edge technologies like wireless LAN & WAN (mobile internet & WAP) are also elaborated in reasonable detail.

**CONTENTS****1. Introduction to Mobile Computing :**

## 1.1 Introduction to Mobile Computing

- 1.1.1 What is Mobile Computing and who needs it?
- 1.1.2 Advantages of Mobile Computing,
- 1.1.3 Mobile Computing Architecture
- 1.1.4 Mobile Computing Technology ( H/W, S/W, Communication, Available Technologies)

## 1.2 Mobile Computing Models

- 1.2.1 What is adaptation
- 1.2.2 Types of adaptation (System aware Application transparent and System transparent Application aware)
- 1.2.3 Client-Proxy-server model
- 1.2.4 Thin client model
- 1.2.5 Disconnected operation model
- 1.2.6 Dynamic Client server Model
- 1.2.7 Mobile agent model

**2. Wireless Communication :**

- 2.1 Electromagnetic spectrum
- 2.2 Terrestrial and satellite microwave communication
- 2.3 Broadcast radio
- 2.4 Infrared and Light wave communication
- 2.5 Introduction to Wireless Communication system

**3. Cellular Telephone Technology and GSM :**

## 3.1 Cellular Communication

- 3.1.1 Cellular Concept
- 3.1.2 Cellular system architecture (Cells and Clusters, Frequency reuse, Cell Splitting Hand off)
- 3.1.3 Introduction Digital cellular system (TDMA, E-TDMA, Fixed Wireless Access, PCS, CDMA)

## 3.2 Global System for Mobile Communication

- 3.2.1 Introduction to GSM, The GSM network (The switching system, BSS, operation and support system)
- 3.2.2 GSM network areas
- 3.2.3 GSM specifications

**4. Wireless LAN Technology and Bluetooth :**

## 4.1 Wireless LANs

- 4.1.1 What is a Wireless LAN?
- 4.1.2 Wireless LAN applications

- 4.1.3 Wireless LAN requirements
- 4.1.4 Wireless LAN types
- 4.1.5 Wireless LAN problems (Hidden station and exposed station problems)

#### 4.2 Introduction to Bluetooth

### 5. Mobile Internet and WAP :

#### 5.1 Mobile Internet

- 5.1.1 Routing for Mobile hosts
- 5.1.2 Mobile IP
- 5.1.3 Wireless TCP
- 5.1.4 Introduction to Mobile Internet

#### 5.2 WAP

- 5.2.1 Mobile Computing and WAP
- 5.2.2 Basic WAP Model
- 5.2.3 WAP Architecture and its comparison with WWW architecture
- 5.2.4 Advantages with WAP

### REFERENCE BOOKS :

- |  |                    |
|--|--------------------|
| 1. <a href="http://www.ksouonline.org/download.htm">http://www.ksouonline.org/download.htm</a> |                    |
| 2. Mobile Communication Engineering  | W.C.Y. Lee, TMH    |
| 3. Mobile Communication  | Silcher, PEA       |
| 4. The Complete Guide to Wireless Computing and Networking                                     | Paul Heltzel, BPB  |
| 5. Blue Tooth Connect without Cables   | Jennifer Bray, PEA |

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### DOT NET TECHNOLOGY

**CODE IT 305**  
CS 305

**L T P**  
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#### RATIONALE

NET has evolved as an important framework in the recent times for developing windows, web and enterprise applications. The objective of the subject is to introduce .NET technology which provides a multi-language environment to develop windows based software. The main focus is on .NET framework, development environment as VB.NET, ASP.NET.

#### CONTENTS

### 1. Introduction to .NET Framework and Development Environment :

- 1.1 Introduction to .NET
- 1.2 Comparison between .NET and Java
- 1.3 Architecture and Advantages of .NET framework
- 1.4 Namespaces
- 1.5 Object Oriented Features
- 1.6 Visual Studio.NET Integrated Development
- 1.7 Elements of IDE
- 1.8 Writing a Simple Application using .NET

### 2. Visual Basic.NET :

- 2.1 Introduction to and Features of VB.NET
- 2.2 Similarities and Differences between Visual Basic and VB.NET
- 2.3 Data types supported in VB.NET

- 2.4 Variables, Scope of Variables
- 2.5 Access Control: Public, Private, Protected, Friend, Protected Friend
- 2.6 Various Operators: Arithmetic, Comparison, Assignment, Logical Operators, Concatenation Operators, Operator Precedence

### **3. Programming Concepts of VB.NET :**

- 3.1 Control Structures: Decision Making Statements, Looping Statements, Other Statements
- 3.2 Arrays: Static, Dynamic Arrays, Array Functions
- 3.3 Procedures and Functions
- 3.4 Parameter Passing: Pass-by-Value, Pass-by-Reference, Optional and Named Arguments
- 3.5 Predefined Functions: MsgBox(), InputBox(), and other functions.

### **4. Object Oriented Features of VB.NET :**

- 4.1 Introduction to OOP Features: Class, Objects, Overloading, Overriding, Structure
- 4.2 Structure: Similarities and Differences with Class
- 4.3 Overloading the Methods
- 4.4 Shared Members
- 4.5 Inheritance
- 4.6 Abstract Base Class
- 4.7 Interfaces: Differences between Interface and Class

### **5. Windows FORMS and Controls**

- 5.1 Introduction
- 5.2 Windows Forms: Properties and Methods, Events, MDI Forms
- 5.3 Properties and Methods Controls: Label, TextBox, LinkLabel, Button, Radio Button, CheckBox, ListBox, ComboBox, Timer control, Scroll bars, Menus
- 5.4 Exception Handling

### **6. Database Connectivity using ADO.NET :**

- 6.1 Evolution and Features of ADO.NET
- 6.2 ADO versus ADO.NET
- 6.3 ADO.NET Object Model
- 6.4 Overview of Data Provider, Provider Objects: Connection, Command, Data Adapter, Data Reader
- 6.6 Overview of DataSet, Types of DataSets
- 6.7 Data Object Model and Data Object Model
- 6.8 Namespaces in ADO.NET
- 6.9 Using Command Objects
- 6.10 Data Binding : Simple Binding, Complex Binding

### **7. ASP.NET :**

- 7.1 Introduction
- 7.2 Differences and Similarities between ASP and ASP.NET
- 7.3 Characteristics of ASP.NET
- 7.4 Architecture of ASP.NET
- 7.5 Server Controls
- 7.6 HTML Server Controls
- 7.7 Types of Web Controls
- 7.8 Working with Web Controls & their Properties
- 7.9 Validation Web Server Control
- 7.10 ASP.NET Event Handling
- 7.11 User Controls
- 7.12 Data Access through ASP.NET
- 7.13 Session and Application Objects in ASP.NET
- 7.14 Cookies: properties and limitations



**PRACTICAL'S**

1. Practice programs on VB.NET using variables and operators.
2. Practice programs on VB.NET using conditional and control structures.
3. Practice programs on VB.NET using Arrays.
4. Practice programs on VB.NET using Inheritance property.
5. Practice programs on VB.NET using Forms and Controls.
6. Practice programs on Database connectivity using ADO.NET.
7. Practice programs on Data Access through ASP.NET
8. Practice programs on ASP.NET using web controls.
9. Practice programs on ASP.NET using Event-handling.
10. Practice programs on ASP.NET using Cookies.

**REFERENCES BOOKS :**

- |  |   |
|--|---|
| 1. Essentials of .NET Programming,     | C. Komalavalli, Sanjib K Sahu, Ane Books Pvt. Ltd., New Delhi |
| 2. Visual Basic.NET,                   | Shirish Chavan, Pearson Education, New Delhi                  |
| 3. Introduction to Visual Basic.NET,   | NIIT (PHI)  |
| 4. ASP.NET and VB.NET Web Programming, | Matt J. Crouch , Pearson Education, New Delhi                 |
| 5. Programming VB.NET,                 | Cornell, Gary, IDG  |

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**COMPUTER NETWORK**

**CODE IT 306**  
CS 306

**L T P**  
2 1 --

**RATIONALE**

Computer networks have global utilities in certain fields. It is used in inter linking libraries, Air Lines, Railway Station for reservations. The knowledge of subject and related software will enable the students to work in organization having such types of facilities. Today most uses of computer network in Internet for transferring files, email, audio-video conferencing movies, chatting at remote places.

**CONTENTS**

- 1. Data Link Layer and Local Area Networks :**
  - 1.1 Data Link Layer Design Issues
    - 1.1.1 Framing,
    - 1.1.2 Error Detection and Correcting Code
    - 1.1.3 Error Control
  - 1.2 LAN Protocols
    - 1.2.1 Ethernet and IEEE 802.3 Standard CSMA/CD
    - 1.2.2 IEEE 802.5 LAN Token Ring
  - 1.3 PPP : Point to Point Protocol
  - 1.4 FDDI : Fiber Distributed Data Interconnect
- 2 Network Layer and Routing :**
  - 2.1 Network Layer Design Issues
  - 2.2 Routing Algorithms
    - 2.2.1 Shortest Path Routing
    - 2.2.2 Flooding
    - 2.2.3 Distance Vector Routing
    - 2.2.4 Hierarchical Routing
    - 2.2.5 Multicast Routing
  - 2.3 Internet Protocol
    - 2.3.1 IPv4 Header
    - 2.3.2 IPv4 Address
    - 2.3.3 Subnetting
    - 2.3.4 Internet Control Protocols

- 2.4 IPv6
  - 2.4.1 IPv6 Header
  - 2.4.2 IPv6 Extension Headers
  - 2.4.3 IPv6 Addresses
- 2.5 Routers

### 3. Transport Layer :

- 3.1 Transport Layer Services
- 3.2 Transport Protocol Mechanisms
  - 3.2.1 Addressing
  - 3.2.2 Multiplexing
  - 3.2.3 Establishment a Connection
  - 3.2.4 Releasing a Connection
  - 3.2.5 Reliable Delivery
  - 3.2.6 Flow Control and Buffering
- 3.3 Connectionless Transport Protocol : UDP
- 3.4 Connection - Oriented Transport Protocol : TCP
  - 3.4.1 TCP Header format
  - 3.4.2 TCP Connection Management
  - 3.4.3 TCP Congestion Control
  - 3.4.4 TCP Timer Management

### 4. Application Layer :

- 4.1 Principles of Application Layer Protocols
- 4.2 Domain Name System: DNS
- 4.3 The File transfer Protocol : FTP
- 4.4 Electronics Mail in the Internet : POP, HTTP, IMAP
- 4.5 WWW and HTTP
- 4.6 Network Management SNMP

### 5. Wireless Networking :

- 5.1 Wireless LANs
- 5.2 IEEE 802.11
- 5.3 BlueTooth
- 5.4 WiMAX IEEE 802.16
- 5.5 Building a Network

### REFERENCES BOOKS :

- |   |                                   |
|---|-----------------------------------|
| 1. Data Communication and Computer Networks | Sanjay Pahuja Standard Publishers |
| 2. Data Communication and Computer Networks | B. Froujan TMH                    |
| 3. Computer Networks                        | Andrew S. Tanenbaum, PHI          |
| 4. Computer Networks                        | Peterson & Davie                  |
| 5. Wireless Communications                  | W. Stallings PHI                  |
| 7. Computer Networks                        | Black, PH                         |

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**CONTENT MANAGEMENT SYSTEM****CODE IT 307****L T P**  
**2 -- 2****RATIONALE**

Content Management Systems come in all shapes and sizes. Chances are, if you've put up a Web page on a free Web page server or ISP you've had access to a rudimentary content management system. Drupal is a free open source Content Management System [CMS] that allows anyone to easily publish, manage and organize a wide variety of content on a website. Hundreds of thousands of people and organizations are using Drupal to power an endless variety of sites. In this expert Drupal session, you will learn how to make your own module in drupal. This custom module will extend the functionality of your existing application.

**CONTENTS**

- 1. Introduction :**
  - 1.1. What is Content?
  - 1.2. What is Content Management?
  - 1.3. What is CMS?
  - 1.4. Doing Content Management Projects
  - 1.5. Designing a CMS
  - 1.6. Building CMS
- 2. Installation of xamp and Drupal.**
- 3. Introduction of Drupal Modules.**
  - 3.1 What is CMS
  - 3.2 Drupal Communities
  - 3.3 What is Drupal
  - 3.4 What is Module in drupal
  - 3.5 Drupal Architecture
  - 3.6 Core modules
  - 3.7 Hooks
  - 3.8 Themes
- 4. Drupal Concept :**
  - 4.1 Nodes
  - 4.2 Users
  - 4.3 Block and page rendering
  - 4.4 Menus
  - 4.5 Forms
  - 4.6 Database Schema APIs
- 5. Creating Modules**
- 6. Hook Implementation**
- 7. Installing Module**
- 8. Theme System and Module**
- 9. Accessing Database**
- 10. Form API and Permission**

**PRACTICAL**

Create following small web application using Drupal:

1. Institute Dynamic Web site
2. Online Admission
3. Blogs
4. Online Purchase
5. Online Application form
6. Online Objective Examination

**REFERENCES BOOKS :**

1. Content Management Bible, 2<sup>nd</sup> Edition                      Bob Boiko, Wiley Publishing Inc.
2. Content Management Systems                                      Dave Addey, Phil Suh Glasshaus, 2002
3. <http://drupal.org/documentation>

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**INTRODUCTION TO NETWORK SECURITY AND CRYPTOGRAPHY**

**CODE IT 308**  
CS 308

**L T P**  
2 1 --

**RATIONALE**

The aim of this course is to provide adequate knowledge about cryptography and network security. In this course student are taught about need and principle of security, different types of attacks, cryptographic techniques, symmetric and asymmetric key cryptography, Internet Security Protocols, E-mail Security, Firewall and VPN.

By acquiring adequate knowledge of this subject student may be able to understand the importance of security in today's era when computer applications were developed to handle financial and personal data the real need for security was felt like never before now people realized data on computer are extremely important aspect of modern life. After completing this course, the student will be able to understand importance of security, cryptographic techniques and various concepts of security.

**CONTENTS****1. Computer Security :**

- 1.1 Introduction
- 1.2 Need of Security
- 1.3 Security approaches
- 1.4 Principle of Security

**2. Attacks on Computer :**

- 2.1 Attacks: A general and technical view
- 2.2 Active and passive attacks
- 2.3 Program that attacks:
  - 2.3.1 Virus
  - 2.3.2 Worm, Trojan horse
  - 2.3.3 Applets, ActiveX controls
  - 2.3.4 Cookies, Scripts
- 2.4 Preventing Virus
- 2.5 Specific attacks
  - 2.5.1 Sniffing and Spoofing
  - 2.5.2 Phishing
  - 2.5.3 Pharming or DNS spoofing

**3. Cryptographic : Concepts and Techniques**

- 3.1 Plain and Cipher Text
- 3.2 Substitution techniques
  - 3.2.1 Caesar Cipher
  - 3.2.2 Mono-alphabetic Cipher
  - 3.2.3 Polyalphabetic substitution Cipher
  - 3.2.4 Playfair Cipher
- 3.3 Transposition Techniques
  - 3.3.1 Rail Fence Technique

- 3.3.2 Simple Columnar Transposition Technique
- 3.3.3 Vernam Cipher (One time pad)

#### 3.4 Encryption and Decryption

### 4. Symmetric and Asymmetric Key Cryptography

- 4.1 Block and stream cipher
- 4.2 Overview of Symmetric Key Cryptography
- 4.3 Overview of Asymmetric Key Cryptography
- 4.4 Digital signature
- 4.5 Concept of message digests

### 5. Internet Security Protocols

- 5.1 Basic concept
- 5.2 Introduction of TCP/IP
- 5.3 Brief Overview of
  - 5.3.1 Secure socket layer (SSL)
  - 5.3.2 Secure Hyper Text Transfer Protocol (SHTTP)
  - 5.3.3 Time stamping Protocol (TSP)
  - 5.3.4 Secure Electronic Transaction (SET)

### 6. E-mail Security:

- 6.1 Introduction
- 6.2 SMTP
- 6.3 Brief Overview of
  - 6.3.1 Privacy Enhanced Mail (PEM)
  - 6.3.2 Pretty good privacy (PGP)
  - 6.3.3 Secure multipurpose secure Internet mail Extensions (SMIME)

### 7. Firewall

- 7.1 Introduction
- 7.2 Types of firewall
- 7.3 Packet filter
- 7.4 Application gateways
- 7.5 Concepts of DMZ
- 7.6 Limitation of firewall
- 7.7 Virtual Private Network (VPN)
- 7.8 Intrusion

### REFERENCE BOOKS :

- |                                      |  |
|--------------------------------------|--|
| 1. Cryptography and Network Security | Atul Kahate, TMH                               |
| 2. Cryptography and Network Security | Behrouz Forouzan, TMH / MH                     |
| 3. Network Security Essentials       | Stallings W Pearson Education Asia             |
| 4. Cryptography and Network Security | Stallings W Pearson Education Asia             |
| 5. Network Security                  | Kaufmann Charlie et al. Pearson Education Asia |
| 6. Network and Internet Security     | Vijay Ahuja A P Professional                   |

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CODE IT 309

**CYBER LAWS**

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**RATIONAL**

Cyber Laws in a course meant to provide an understanding of the basic structure of cyber laws and their impact on every day living in the cyber society. This course meant that student would be aware of the nature of the cyber space, now internet functions, what are the nature of properties created on the internet, how to use digital signatures. Dealing with virus and other cyber crimes. How banks function in the E-era. The essential ingredients of a website for the bank. It tells how ISP and cyber cafe management should work. In view of the social purpose behind the course it is meant to inculcate the knowledge about “Cyber Crimes” and inter alias build some awareness about behavioral aspects that lead to negative behavior in the society.

**CONTENTS****1. Information Technology and Legal Response :**

- 1.1 Introduction
- 1.2 We, Cyberspace and Our Lives
- 1.3 The Nature of the Net
- 1.4 Features of the Net
- 1.5 Geographical Indeterminacy

**2. Cyber Crimes :**

- 2.1 Introduction
- 2.2 Cyber Crime – A perspective
- 2.3 The Problem: Current Forms of Computer Crime
  - 2.3.1 Infringements of Privacy
  - 2.3.2 Economic offences
  - 2.3.3 Computer Hacking
  - 2.3.4 Software Piracy and other forms of Product Piracy
  - 2.3.5 Computer Sabotage and Computer Extortion
  - 2.3.6 Computer Fraud
  - 2.3.7 Illegal and harmful contents

**3. Cyber Contracts :**

- 3.1 Introduction
- 3.2 Cyber Contract
- 3.3 Essentials of a contract
  - 3.3.1 Intention to be bound
  - 3.3.2 Offer and Acceptance
  - 3.3.3 Concept of offer
  - 3.3.4 Offer by and to whom
  - 3.3.5 Statements which are not offers
- 3.4 Termination of offer
- 3.5 Quality of acceptance
- 3.6 Consideration
- 3.7 Capacity of the parties
- 3.8 Consent
- 3.9 Unlawful agreements
- 3.10 Persons bound by contract
- 3.11 Performance and frustration
- 3.12 Subsequent Events and Frustration

3.13 Remedies for Breach of Contract

- 3.13.1 Damages
- 3.13.2 Specific performance
- 3.13.3 Injunctions

**4. Cyber Privacy :**

- 4.1 Introduction
- 4.2 Policy approaches to privacy concerns
  - 4.2.1 Market approach
  - 4.2.2 Human rights approach
  - 4.2.3 Contract approach
- 4.3 Platform for Privacy Preferences Project (P3P).

**5. Cyber Intellectual Property Rights :**

- 5.1 Introduction
- 5.2 Concept of Intellectual Property Rights
- 5.3 The Impact of Electronic Commerce on Intellectual Property
  - 5.3.1 The Protection Of Copyright And Related Rights In The Digital Environment
  - 5.3.2 Overview of the Issues
  - 5.3.3 Technological protection measures
  - 5.3.4 Future Work in the protection of Copyright and related rights

**6. Information Technology Act, 2000 (I.T. Act, 2000) :**

- 6.1 Introduction
- 6.2 The Information Technology Act, 2000: An overview
- 6.3 Transmission of electronic documents
- 6.4 Evidentiary presumptions of a secured electronic document
- 6.5 Certifying Authority (CA)
- 6.6 Controller of Certifying Authorities.
- 6.7 Suspension of Certifying Authority
- 6.8 Digital Signature
- 6.9 Digital Signatures: Power of Central Government to make rules
- 6.10 Digital Signature Certificate
- 6.11 Revocation of Digital Signature Certificate

**7. Brief Introduction :**

- 7.1 Patents
- 7.2 Trade Marks
- 7.3 Domain Names

**REFERENCE BOOKS :**

1. <http://www.ksouonline.org/download.htm>
2. Cyber Law for Every Netien in India Na. Vijayashankar
3. Cyber Law Simplified Vivek Sood, TMH

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CODE IT 310

**CLIENT SERVER COMPUTING**

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**RATIONALE**

The aim of this subject is to develop the skill of IT student in the field of Database Administration and make them familiar with the client server technology used in database computing. This course covers only the basic Theoretical aspects of client server computing and knowledge related to client server components.

**CONTENTS****1. Introduction to Client/Server Computing :****1.1 Client/Server Computing**

- 1.1.1 Definition of Client/Server Computing
- 1.1.2 What is client/server?
- 1.1.3 File server
- 1.1.4 Database server
- 1.1.5 Transaction server
- 1.1.6 Groupware server
- 1.1.7 Object server
- 1.1.8 Web Server
- 1.1.9 What is Middleware?
- 1.1.10 Fat servers and Fat clients
- 1.1.11 2-Tier versus 3-Tier
- 1.1.12 Intergalactic Client/Server

**1.2 Client/Server Building Blocks**

- 1.2.1 Client/Server: A one size Fits all model,
- 1.2.2 Client server architecture for Small shops,
- 1.2.3 Client server architecture for Small Departments,
- 1.2.4 Client server architecture for Intergalactic enterprises
- 1.2.5 Client/Server for Post-Scarcity world
- 1.2.6 Inside Building Blocks.

**2. Clients, Servers and Operating Systems :****2.1 Servers**

- 2.1.1 The Anatomy of a Server Program
- 2.1.2 What does a Server need from an OS?
  - 2.1.2.1 Base Services
  - 2.1.2.2 Extended Services
- 2.1.3 Server Scalability
- 2.1.4 Examples of Server OS

**2.2 Clients**

- 2.2.1 Client Anatomy
  - 2.2.1.1 Non GUI Clients
  - 2.2.1.2 GUI Clients
  - 2.2.1.3 OOUI Clients
  - 2.2.1.4 GUI versus OOUI
  - 2.2.1.5 Compound Documents
  - 2.2.1.6 Shippable Places



- 2.2.2 Examples of Clients OS
- 2.2.3 Client Server Hybrids

### 3. **Middleware, API and RPC :**

#### 3.1 **Middleware and API**

- 3.1.1 What is Middleware?
- 3.1.2 Application Services Accessible via Middleware
- 3.1.3 Access to Integrated Network Services
- 3.1.4 The Application Programming Interface
- 3.1.5 Components of an API

#### 3.2 **RPC, Messaging and Peer-to-Peer :**

- 3.2.1 Peer-to-Peer Communications
- 3.2.2 Remote Procedure Call
- 3.2.3 Messaging and Queuing: The MOM Middleware
- 3.2.4 MOM versus RPC

### 4 **Client Server with Distributed Object :**

- 4.1 CORBA
- 4.2 DCOM
- 4.3 Client server Internet

#### **REFERENCE BOOKS:**

- |   |                          |
|---|--------------------------|
| 1. Client Server Computing                    | Dawna Travis Dewire, MH  |
| 2. Client Server Computing                    | Partrick Smith, AW       |
| 3. Client Server Computing for Dymmies        | Doug Low & John, willey  |
| 4. The Essential Client Server Survival guide | Harkey Edwards, Galgotia |

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