

<p><b>Certificate in</b></p> <p><b>Software Programming</b></p> <p><b>under SCVT Craftsman Training Scheme</b></p>

**Certificate in  
Software Programming  
under SCVT Craftsman Training Scheme**

Eligibility : 12th Class pass under 10+2 system or duly recognized Diploma in Engineering from any AICTE approved Polytechnic Diploma of 3yrs duration after class 10th.

Fees : 25,000/-

Age : As per Department's normal ITI Admission norms

Duration of Training : 52 Weeks (1 year) @ 30 hrs/week.  
- 2 hrs/week for Library  
- 2 hrs/week for Week End Exam  
- 2 hrs/week for Extra Curricular Activity  
-----  
Total : 6 hrs/week  
-----

30 - 6 = 24 hrs/week total course hours.

Total Practical hrs/week : 12 hrs

Total Theory hrs/week : 12 hrs

Total Course duration : 52 x 24 hrs = 1248 hrs

Total no. of hours for Practical : 52 x 12 hrs = 624 hrs

Total no. of hours for Theory : 52 x 12 hrs = 624 hrs

Total Students per Batch : 25

Objectives of the Course :

- 1) Learning Fundamental of Computer.
- 2) To attain data entry speed.
- 3) To attain optimum skill level for Web page hoisting and designing.
- 4) Learning various packages on Linux, HTML, DHTML, Oracle 8.0, Java 2.0, V.B 6.0,
- 5) Learning basics of programming techniques.
- 6) A student can successfully do Project work.

**Minimum Hardware and Furniture required for Software Programming trade under the aegis of SCVT pattern**

Sr. No.	Hardware and Furniture Specification	Quantity Reqd. for 4 Batches
1	Server with P- III or P- IV Processor @ 500 MHz with 128 MB RAM, 10.2 GB HDD, 1.44 MB FDD, 16 Bit Ethernet Card, 52x CD ROM Drive, SVGA Color Monitor, 101 Keyboard, Mouse, Sound Card and Speakers + Microphone Separate Telephone line for Internet connection with 56.6 Kbps Modem Web Camera and Mpeg Encoder	1
2	Nodes with P-III Processors @ 500 MHz. with 64 MB RAM, 10.2 GB HDD, 1.44 MB FDD, 16 Bit Ethernet Card, SVGA Color Monitor, 101 Keyboard, Mouse	25
3	5 KVA Stabilizer	2
4	0.5 KVA UPS for Server	1
5	16 Port Hub for LAN RJ 45 connectors an UTP cable	2 Hubs ( Cable and connectors as per requirement )
6	132 Column Dot Matrix Printer	1
7	Desk-Jet or Laser or Inkjet Printer	1
8	Scanner	1
9	Window A.C. With 1.5 and 2 ton capacity	2 ( one of 1.5 ton / one of 2 ton )
10	Vacuum Cleaner	1
11	Computer tables with Sunmica top, having sliding tray for keyboard and one shelf for storage	25
12	Student chairs with castor and adjustable height having cushion	25
13	Cushion fix chairs with rest arm and movable writing pad support	25
14	White Board	2
15	Over Head Projector (OHP) or any other Multi-media type display device	1

**Note : Each Batch Comprising of 25 Students.**

**Software required for Software Programming trade under the aegis of SCVT pattern**

Software Specification
Windows NT (Server) , Windows NT (Workstation) , C, C++, Java 2.0, JDK 1.3, Oracle 8.0, Internet Connection, Linux 7.0, FrontPage 2000, Flash 4.0, MS-Office 2000. <b>All Softwares should be license version</b>

**Faculty Qualification** :Diploma in Computer Science/Computer Application/Computer Technology (2 years OR more) by any Institution approved by AICTE.  
OR BCA (3 year course) or MCA or BE (Computer Science) from any recognized university.

In addition to above, the faculty should have minimum 3 years of teaching experience in any reputed Computer Institute in respect of topics covered in the course.

**Faculty Requirement** :**FOR ONE BATCH** Minimum 2 faculties are needed with above qualification for 1 batches each of 25 students. (1 Faculty for theory and 1 faculties as a lab coordinator )  
**FOR TWO BATCHES** Minimum 3 faculties are needed with above qualification for 2 batches each of 25 students. (1Faculty for theory and 2 faculties as a lab coordinator )

**Note : Theory and practical should be conducted simultaneously for each batch of 25 students**

**Area Requirement** : For Practical Lab : 300 Sq. ft.  
For Theory Room : 200 Sq. ft.  
For Library Room : 150 Sq. ft.

Office Space, Pantry, etc.. should be there. Separate Toilet Facility for ladies and gents should be there.

**Total Area requirement for Institute is 1200 Sq. Ft. minimum in good locality.**

**Reference Books** : ABCs of Windows 98, Computer Basics, LINUX Complete, Java 2 Complete, Visual Basic 6 Complete,

**Exam Pattern** : 1 Hour Theory (100 marks) & 2 hours Practical (300 marks). Mid-term exam should be conducted after six months. Final examination should be conducted at the end of the course.

## Software Programming Subjects & Duration

Sr. No	Topics	Duration of course in Weeks	Total Theory Hrs	Total Practical Hrs.
1	Computer Fundamentals & DOS	2	24	24
2	Windows NT 4.0	2	24	24
3	MS-Word 2000	2	24	24
4	MS-Excel 2000	2	24	24
5	MS-PowerPoint 2000	1	12	12
6	MS-FrontPage 2000	2	24	24
7	Linux	2	24	24
8	Programming Techniques & Principles	2	24	24
9	C, C++	6	72	72
10	Oracle 8.0 DBA	8	96	96
11	Visual Basic 6.0	6	72	72
12	Java 2.0 Programming	8	96	96
13	XML Introduction	2	24	24
14	Cutting Edge Technology	3	36	36
15	Project (Simulated)	4	48	48
	<b>Total</b> :	<b>52</b>	<b>624</b>	<b>624</b>

**Note :** In Cutting edge technology we have to give the knowledge of the latest technology in the market.

**Software Programming**  
**Week wise Break-up**

**Computer Fundamentals & DOS**

**Week - 1**

Introduction

Booting process

What is Computer?

History of Computer

- A Tribute To The Past
- Generations Of Computer

Types Of Computers

- Micro Computer
- Mini Computer
- Main Frames
- Super Computer

Applications of Computers

Advantages of Computers

Computers and Human Beings

Basic Computer Organization

- Input Devices
- Memory
- Processor
- Output Devices

Units of Memory

Types of Memory

Storage Devices

- Tapes
- Disks

Difference Between Data and Information

Need of Information

Types of Programming Languages

- High Level Languages
- Low Level Languages

Data Organization

What are Data Files

What are Program Files

What are Batch Files

What are Command Files

The Numbering Systems

Decimal System

Binary System

Binary Coded System

What are ASCII Text Files  
Role of ROM-BIOS in a Computer System  
Software  
Different Types of Software  
- System Software  
- Application Software  
- Custom Software  
Interpreters  
Compilers  
Assemblers  
Editors  
Hardware  
Types of Computer Hardware  
Latest in Computer Hardware

## DOS

### **Week - 2**

Concepts of an Operating System  
- DOS Buffers  
Types of Operating Systems  
- Single User  
- Multi User  
Functions of an Operating System  
- Device Management  
- Memory Management  
- Disk Organization  
Understanding Disk Organization  
- Tracks  
- Clusters  
- Sectors  
Role of Config.sys  
Understanding the Concepts of System Area on the disk  
Understanding the Concepts of User Area on the disk  
DOS file naming Conventions  
DOS Wildcards ( \* , ? )  
Importance of MS-DOS.SYS, IO.SYS, COMMAND.COM  
DOS Internal Commands  
DOS External Commands  
DOS Device Descriptors  
- CON, PRN  
- LPT1, LPT2, LPT3  
- COM1, COM2, COM3, COM4

## Windows NT 4.0

### **Week - 3**

#### **Introduction to Windows NT 4.0**

Understanding Windows NT  
Differences between Windows NT Server and Windows NT Workstation  
Features of Windows NT Server 4.0  
Customizing Windows NT Server 4.0  
Hardware and software requirements

- Hardware requirements
- Software requirements
- Getting more information
- Using Windows NT Help
- Using troubleshooting wizards in Help

### **Installing Windows NT Server 4.0**

Before you begin

- Pre-installation checklist
- Running Windows NT Server Setup
  - Upgrading to Windows NT Server 4.0
- Selecting Setup options
  - FAT vs. NTFS
  - Choosing a licensing option
  - Network protocols
  - Logging on to Windows NT Server 4.0

### **Windows NT Workstation 4.0 Basics**

- Introducing Windows NT Workstation
  - Starting and shutting down Windows NT Workstation
  - Windows NT Security
- Touring the Windows NT Desktop
- Customizing your work environment
  - Changing how your desktop looks
  - Creating shortcuts to files and folders
  - Customizing the Start menu
- Viewing the contents of your computer
  - Organizing files and folders
- Starting, closing, and switching between programs
  - Starting programs automatically
  - Using the Task Manager to quit a program
- Getting connected to the World Wide Web
  - Touring Internet Explorer 5.0
  - Exploring the World Wide Web
- Understanding Control Panel
- Printer Settings
- Task Bars
- Understanding Accessories in Windows NT 4.0 Workstation

### **Week - 4**

#### **Windows NT Server 4.0 Basics**

- Understanding networks
  - LAN vs. WAN
  - Making the connection
- Components of a Windows NT network
  - Workgroups and domains
  - Servers: Primary Domain Controllers, Backup Domain Controllers, and member servers
  - User accounts
  - Groups
  - Built-in accounts and groups
- Account policies, user profiles, and user rights
  - Account policies
  - User profiles

User rights  
Understanding Control Panel  
Printer Settings  
Task Bars  
Understanding Accessories in Windows NT 4.0 Server

## **MS-Word 2000**

### **Week - 5**

#### **Getting Started with Word 2000**

What's New with Word 2000?  
Installing Word 2000  
Starting Word 2000  
Exiting Word 2000  
Understanding Elements of the Word Window  
Working with Menus  
Working with Toolbars  
Working with Dialog Boxes  
Controlling Word Window  
Getting Help Using Office Assistant  
Microsoft Word Help Window

#### **Entering & Edit Text and Moving Around the Document**

Typing Text  
Navigating Through Text  
Moving Directly to Specific Page  
Creating, Saving and Opening files  
Accessing File & Folders  
Creating Folders  
Renaming and Deleting Files  
Moving and Copying Files  
Understanding Templates and Wizards  
Selecting a Template or Wizard for a New Document  
Inserting new text into existing text  
Deleting, Moving & Copying Text  
Undoing Mistakes in Text  
Restoring deleted Text

#### **Viewing & Printing Documents**

Switching Views  
Arranging Multiple Document on the Desktop  
Zooming Document  
Previewing document before printing  
Printing Document

#### **Formatting Characters & Paragraphs, Pages**

Changing Fonts, Font size, Color  
Applying Boldface, Italic, Underline, Text Effects  
Removing & Copying Font Formatting  
Changing Line Spacing & Alignment  
Setting Tabs Spots & Indents  
Creating Bulleted and Number Lists

Coping and Removing Paragraph Formatting  
Adding Borders & Shading to Paragraph  
Changing Margins, Page Orientation and Size  
Adding Page Numbers, Page Borders, Headers & Footers  
Inserting Page Breaks, Section Breaks  
Creating Footnotes & Endnotes  
Creating Table of Contents  
Adding hyperlinks to your Text

BookMarking Specific Locations in Your Document

**Working with Styles, Checking Spelling & Grammar, Thesaurus**

Applying Styles to Text  
Modifying Styles  
Fixing Spelling & Grammar Errors  
Working with Thesaurus  
Correcting Text Automatically  
Inserting Standard Blocks

**Week - 6**

**Editing Shortcuts**

AutoCorrect Text  
Finding & Replacing Text  
Inserting the Date, Symbols, Fields  
Sorting Lists

**Working with Tables Columns and Graphics**

Creating, Formatting & Modifying Tables & Columns  
Navigating, Typing, Selecting & Changing Tables  
Sorting Text within Table  
Inserting Images from Clipart Gallery & other Places  
Drawing Shapes with Drawing Tools  
Using WordArt  
Sizing, Moving & Cropping Images

**Generating a Multiple Mailing using Mail Merge**

What is Mail Merge?  
Starting your Form Letter  
Creating your List of Recipient Data  
Merging the Letter and Data  
Editing Recipient Data  
Merging Envelops and Labels  
Merging Selected Record

**Inserting Data From Other Office 2000 Applications in Word 2000 Documents**

Inserting Data from Excel Worksheet into Word 2000 document  
Embedding Data from Excel in Word document  
Exporting PowerPoint Presentation to a Word 2000 document  
Adding an Individual PowerPoint slide to Word document

**Sending E-mail through Word 2000**

Sending Word document as an E-mail message  
Sending Word document as an Attachment through an E-mail

Sending any Document as an E-mail Attachment

## **MS-EXCEL 2000**

**Week - 7**

### **Getting Started with Excel 2000**

What is Excel 2000?  
How to Start Excel 2000?  
Understanding Excel 2000 Screen  
Excel Toolbars, Menus and Dialog Boxes  
Using Help in Excel 2000  
Getting Help Using Office Assistant  
Entering Data in Excel 2000  
Types of Excel Data  
Automating your Work  
Creating a Simple Spreadsheet  
Entering Values  
Choose Number Styles  
Working with Decimal Places  
Hiding Zeros  
Designing Custom Numeric Formats  
Working with Dates and Times  
Copying from Cell to Cell  
Making Changes to the Worksheet  
Inserting and Deleting Cells  
Working with Rows and Columns

### **Organizing & Managing your Workbooks, Files & Folders**

Saving Workbook  
Saving your work for the First Time  
Exploring Save As Dialog Box  
Understanding Excel Extensions  
Protecting Your Work with AutoSave  
Saving existing Workbook with a New Name  
Protecting Your Files  
Other Save Options  
Rearranging Files  
Creating a Blank Workbook  
Opening Workbooks  
Working with Range Name  
Navigating Workbooks and Worksheets

### **Working With Formulas & Functions**

What is Formula?  
How to Create Simple Formula  
Using AutoSum  
Using Range names in Formulas  
Using Relative and Absolute Addressing  
Coping Formulas  
Troubleshoot Formula Errors  
Why us Excel Functions?  
Using Formula Palette  
Paste Function Dialog Box  
Using Financial, Logical, Lookup, Date & Time Function

### **Using Excel 2000 Templates**

What is Templates?  
How to Open and Change an Excel Template  
Create your own Template  
Save a Worksheet as a Template

### **Formatting the Text**

Using fonts  
Changing Cell Alignment  
Copy Formatting with the Format Painter  
Adjusting Column Width & Row Height  
Working with Comments  
Adding Borders, Colors and Fills  
Using AutoFormat

### **Working with Graphics**

What is Graphic Object  
Using Drawing Toolbars  
Adding Clipart  
Adding Special Effects with WordArt  
Combine Multiple Objects  
Manipulating & Deleting Objects

### **Week - 8**

#### **Analyzing your Data**

Using Scenario Manager  
Using Goal Seek  
Using Report Manager  
Working with Pivot Tables

#### **Working with Chart**

What is Chart?  
Understanding Charts Elements  
Types of Charts  
Creating Charts using Chart Wizard  
Working with Charts  
Formatting Charts

### **Working with Workbooks**

- Arranging Workbooks
- Switch between Workbooks
- Move & Copy Data between Workbooks
- Creating links between Worksheets and Workbooks
- Customize Excel
- How to Protect your Worksheet Data
- Add-ins in Excel

### **Integrating Excel with Other Office Application**

- Linking & Embedding Objects
- Inserting Objects from the Menu & the Clipboard Toolbar
- Creating Hyperlinks
- Sending Excel documents via E-mail with the help of Outlook Express.

### **Automating Tasks with Macros**

- What are Macros?
- How to Run Macros & Fix Macros Error
- Attach Macros to a Toolbar
- Use of Macros in other Workbooks

### **Building Database in Excel 2000**

- Database Concepts
- Creating a Database Structure
- Creating Database
- Entering Data in Database
- Adding Data in Database
- Searching Data in Database
- Saving the Database

### **Working With Database**

- Working with Subtotals
- Using Advanced AutoFilter Functions
- Setting a Criteria range

### **Printing In Excel 2000**

- Understanding Page Setup
- Adding Headers & Footers
- Selecting the Printing Area
- Inserting Page Break

## **MS-PowerPoint 2000**

### **Week - 9**

#### **Getting Started**

- What's New in PowerPoint 2000?
- Starting PowerPoint 2000
- Using Help
- Using Office Assistant
- Exiting PowerPoint 2000
- Creating Your First Presentation
- Using AutoContent Wizard
- PowerPoint Opening Screen

Types of Toolbars  
Types Of View  
Customizing the Sample Slides  
Spell Checking the Presentation  
Printing Presentation  
Saving, Opening and Creating Presentations  
Using AutoLayout  
Adding New Slides  
Creating Bulleted or Numbered Slides

Moving Slide  
Deleting Slides  
Page Setup

### **Text Objects in PowerPoint 2000**

Difference Between Text Objects & Text Boxes  
Move and Copy a Text Object  
Change Font properties such as font type, size, and color  
Format Bulleted or Numbered Text  
Change Text Object Attributes  
Find and Replace Command

### **Working with Clip Art and Pictures**

Inserting a Clip Art Image or Picture  
Move Copy and Resize Images  
Grouping & Ungrouping Clip Art  
Image Objects Enhancing with Borders, Fill Color, Brightness & Shadows  
Animate Images  
Add Images to Clip Gallery

### **Customizing the Presentation**

Creating Custom Color Scheme, Custom Background  
Creating & Printing Speaker's Notes  
Creating Handout for Audience

### **Working With the Masters**

Types of Masters  
Formatting the Masters  
Saving a Presentation as a Template

### **Slide Show Basics**

Viewing Presentation  
Adding Temporary Annotations to the Presentation  
Slide Timings  
Hide Slide  
Create a Summary Slide

### **Adding Special Features to a Slide**

Adding Special Effects such as Transitions and Animation  
Customizing the Same Slide Show for Two different Audiences  
Working with Text Boxes, WordArt and PowerPoint Guides  
Using AutoShape  
Grouping & Ungrouping Object  
Rotating Objects

Special Effects to the Lines and Objects

### **Creating and Using Tables**

Embedding or Linking a Preexisting Excel Worksheet in PowerPoint Slide

Creating & Editing Charts and Graphs with Microsoft Graph

Using Microsoft Organization Chart

Inserting Multimedia Elements into a PowerPoint Presentation

Using and Creating Macros to Automate Tasks

**Creating Web Pages in PowerPoint**

## **MS-FrontPage 2000**

### **Week - 10**

#### **Creating a Site**

Using Wizards and Themes

Setting Up Style Sheets

Checking Links and Spelling

#### **Working with Frames**

Creating Frames Pages

Splitting Frames

Editing Frames Pages

#### **Altering Images**

Cropping and Resizing

Working with Images and Text

Creating a Transparency

### **Week - 11**

#### **Adding DHTML and Other Media**

Adding DHTML Effects

This is a Good Place for a Plug-In

Adding Video

ActiveX

#### **Managing a Site**

Security

Adding and Removing Users

Checking Files Out and In

#### **Other Timesavers and New Features**

Adding a Hit Counter

Adding an Ad Banner

Add a Search Form

## **Linux 7.0**

### **Week - 12**

### **Installing and Learning about Your System**

Introduction  
Getting Started with Red Hat Linux 7.0  
Installing Red Hat Linux 7.0  
Linux Basics  
Exploring the Red Hat Linux Filesystem  
Using the Visual Editor  
Xfree86 - The Linux Window System

### **Using Red Hat Linux 7.0**

Using the GNOME Desktop Environment  
Setting Up a Printer and Other Devices  
Connecting to the Internet Part 1  
Using the Internet  
Linux Application  
Linux Productivity Application

### **Week - 13**

#### **Linux Foundations**

The Linux 2.4 Kernel  
Working with Shells  
Administering the System  
Using linuxconf and Graphical Administration Tools  
Setting Up a Simple Network

#### **Advanced Topics**

Integrating Linux and Windows  
What Every User Should Know About Security  
Automating Tasks with Shell Scripting  
Troubleshooting and Getting Help  
Compiling and Installing Applications from Source Code  
Introduction to Linux Programming

## **Programming Techniques & Principles (PTP)**

### **Week - 14**

Why Flowcharting?  
Ways to Tackle a Problem  
Symbols Used to Draw a Flowchart  
Data Types: Variables and Constants  
Flowcharting Techniques  
Differentiate between Character, Field, Records, Files  
Reading from Files  
Writing to Files  
Structured Flowcharting

### **Week - 15**

Report Generation  
Control Break Process  
Multiple File Handling  
Transaction Log  
Flowcharting v/s Programming  
Structured Programming Concepts

## C Programming

### **Week - 16**

#### **Overview of C**

'C' history  
Features of C  
Application of C  
Rules for writing a C Program  
Structure of a C Program  
Writing, Compiling and running a C Program  
C Character Set  
Identifiers  
Keywords  
Data Types  
Constants  
Variables  
Arrays  
Declarations  
Expressions  
Statements

#### **Operators & I/O Functions**

Arithmetic Operators  
Unary Operators  
Relational & Logical, Assignment, Conditional Operators  
Precedence of Operators  
getchar, putchar, scanf, printf & escape sequence, gets, puts

#### **Conditions Branching & Looping**

While, Do while, For, If, Switch case, Break, Continue, Goto

### **Week - 17**

#### **Functions**

Function Overview  
Function Declaration  
Defining a Function  
Return Statement  
Accessing a Function  
Passing Arguments to a Function  
Specifying Argument Data Type  
Recursive Function

### **Storage Classes**

What is Storage Classes  
Automatic Variables  
External Variables  
Static Variables  
Register Variables

### **Arrays**

What is an Array?

Defining an Array  
Initializing Arrays  
Processing an Array  
Passing Arrays to a Function  
Multidimensional Arrays  
Arrays and Strings

### **Pointers**

Introduction to Pointers  
Declaring a Pointer  
Passing Pointers to a Function  
Pointers and One-Dimensional Arrays  
Operations on Pointers  
Pointers on Pointers  
Pointers and Multidimensional Arrays

## **OOP's with C++**

### **Week - 18**

#### **Principals of Object-Oriented Programming**

Software Evolution  
A look at Procedure-Oriented Programming  
Object-Oriented Programming Paradigm  
Basic Concepts of Object-Oriented Programming  
Benefits of OOP  
Object-Oriented Languages  
Applications of OOP

#### **Starting with C++**

What is C++  
Applications of C++  
A Simple C++ Program  
C++ Statements  
Class Examples  
Structure of C++ Program  
Creating the Source File  
Compiling and Linking

#### **Tokens, Expressions and Control Structures**

Tokens

- Keywords
- Identifiers
- Basic Data Types
- User-Defined Data Types
- Derived Data Types
- Symbolic Constants
- Type Compatibility
- Declaration of Variables
- Dynamic Initialization of Variables
- Reference Variables
- Operators in C++
- Scope Resolution Operators
- Member Dereferencing Operators
- Memory Management Operators
- Manipulators
- Type Cast Operator
- Expressions and Implicit Conversions
- Operator Overloading
- Operator Precedence
- Control Structures

## **Week - 19**

### **Functions in C++**

- The Main Function
- Function Prototyping
- Call by Reference
- Return by Reference
- Inline Functions
- Default Arguments
- const Arguments
- Function Overloading
- Friend and Virtual Functions

### **Classes and Objects**

- C Structures Revisited
- Specifying a Class
- Defining Member Functions
- C++ Program with Class
- Making an Outside Function Inline
- Nesting of Member Functions
- Private Member Functions
- Arrays Within a Class
- Memory Allocation for Objects
- Static Data Members
- Static Member Functions
- Arrays of Objects
- Objects as Function Arguments
- Friendly Functions
- Returning Objects
- const Member Functions
- Pointers to Members

### **Constructors and Destructors**

- Constructors
- Parameterized Constructors
- Multiple Constructors in a Class

Constructors with Default Arguments  
Dynamic Initialization of Objects  
Copy Constructors  
Dynamic Constructors  
Constructing Two-Dimensional Arrays  
Destructors

**Week -20**

**Operator Overloading and Type Conversions**

Defining Operator Overloading  
Overloading Unary Operators

Overloading Binary Operators  
Overloading Binary Operators Using Friends  
Manipulation of Strings Using Operators

- Rules for Overloading Operators
- Type Conversions

**Inheritance : Extending Classes**

Defining Derived Classes  
Single Inheritance  
Making a Private Member Inheritable  
Multilevel Inheritance  
Multiple Inheritances  
Hierarchical Inheritance  
Hybrid Inheritance  
Virtual Base Classes  
Abstract Classes  
Constructors in Derived Classes  
Member Classes: Nesting of Classes

**Pointers, Virtual Functions and Polymorphisms**

Pointers to Objects  
this Pointer  
Pointers to Derived Classes  
Virtual Functions  
Pure Virtual Functions

**Week - 21**

**Managing Console I/O Operations**

C++ Streams  
C++ Stream Classes  
Unformatted I/O Operations  
Formatted Console I/O Operations  
Managing Output with Manipulators

**Working with Files**

Classes for File Stream Operations  
Opening and Closing a File  
Detecting End-of-File  
More About Open() : File Modes  
File Pointers and Their Manipulations  
Sequential Input and Output Operations  
Updating a File: Random Access

Error Handling During File Operations  
Command-Line Arguments

**Object-Oriented Systems Development**

Procedure-Oriented Paradigm  
Procedure-Oriented Development Tools  
Object-Oriented Paradigm  
Object-Oriented Notations and Graphs  
Steps in Object-Oriented Analysis  
Steps in Object-Oriented Design  
Implementation  
Prototyping Paradigm

**Oracle 8 DBA**

**Database Architecture**

**Week - 22**

**The ORACLE Architecture**

An Overview of Databases and Instances

Databases

- Tablespaces
- Files

Instances

Internal Databases Structures

- Tables, Columns, and Datatypes
- Constraints
- Abstract Datatypes
- Partitions
- Users
- Schemas
- Indexes
- Clusters
- hash Clusters
- Views
- Sequences
- Procedures
- Functions
- Packages
- Triggers
- Synonyms
- Privileges and Roles
- Database Links
- Segments, Extents, and Blocks
- Rollback Segments

Internal Memory Structures

- System Global Area(SGA)
- Context Areas
- Program Global Area(PGA)

Background Processes

External Structures

- Redo Logs
- Control Files

- Trace Files and the Alert Log
- Basic Database implementation
- Backup/Recovery Capabilities
  - Security Capabilities
  - Sample Logical Database Layout
  - Sample physical Database Layout
- Understanding Logical Modeling Conventions
- One-To-One Relationships
  - One-To-Many Relationships
  - Many-To-Many Relationships

## **Hardware Configurations and Considerations and Considerations**

### Architecture Overview

#### Stand-Alone Hosts

- Stand-Alone Hosts With Disk Arrays
- Stand-Alone Hosts With Disk shadowing
- Stand-Alone Hosts With Multiple Databases

#### Networked Hosts

- Networks of Databases
- Remote Updates: The Advanced Replication Option
- Clustered Servers: The ORACLE Parallel Server

#### Multiple Processors: The Parallel Query and parallel Load

- Options

#### Client-Server Database Applications

## **Week 23**

### **Logical Database Layouts**

#### The End Product

#### The Optimal Flexible Architecture (OFA)

- The Starting Point:
- Separating Application

#### Beyond OFA

- Separating Low- Usage
- Separating Low - Usage
- Separating Tools Indexes: TOOLS\_1
- Separating Specialty
- Separating User-Specific Temporary Segments: TEMP\_USER
- Additional Application - Specific

#### Common -Sense Logical Layouts

### **Physical Database Layouts**

#### Database File Layout

- I/O Contention Among Datafiles
- I/O bottlenecks Among All Database Files
- Concurrent i/o Among Background Processes
- Defining the Recoverability and Performance Goals for the system
- Defining the System hardware and Mirroring Architecture
- Identifying Disks That Can Be Dedicated to the Database
- Choosing the Right Layout

#### Verification of I/O weighting Estimates

- The Sixth Iteration : Back to the Planning Stage

File Location

Database Space Usage Overview

- Implications of the Storage Clause
- Table Segments
- Index Segments
- Rollback Segments
- Temporary Segments
- Free Space

Resizing Datafiles in ORACLE 7.2 and Above

- Automating Datafile Extensions

How to Move Database Files

- Moving Datafiles
- Moving Online Redo Log Files
- Moving Control Files

How to Deal locate Space in ORACLE7.2 and ORACLE7.3

- Shrinking Datafiles
- Shrinking Tables, Cluster, and Indexes
- How to Rebuild Indexes

Physically Fit

## **Database Management**

**Week 24**

### **Managing the Development Process**

The Three Critical

- Elements of success

Cultural Processes

Management Processes

- Defining the Environment
- Role Definitions
- Deliverables
- Sizing Database Objects
- Iterative Development

Technology

- CASE Tools
- Shared Directories
- Project Management Databases
- Discussion Databases

Managing package Development

- Generation Diagrams
- Space Requirements
- Tuning Goals
- Security Requirements
- Data Requirements
- Execution Plans
- Acceptance Test Procedures

The Managed Environment

### **Monitoring Multiple Databases**

Common Problem Areas

- Running Out of Free Space in a Tablespace
- Insufficient Space for Temporary Segments
- Rollback Segments That Have Reached Their maximum Extension
- Fragmentation of Data Segments

- Fragmented Free Space
- Improperly Sized SGA areas

Target Selection

The End Product

Creating the Command Center Database

- Getting the Data
- Generating Alert Reports
- The Space Summary Report
- Purging Data

Monitoring memory Objects

- Necessary Modifications to UTLBSTAT and UTLESTAT
- Interpreting the Statistics Reports
- Extensions to the Statistics Reports

The Well - Managed Database

### Week 25

#### Managing Rollback Segments

Rollback Segments Overview

- How the Database Uses Rollback Segments
- Activating Rollback Segments
- Specifying a Rollback Segment for a Transaction

Space Usage Within

- Rollback Segments

Monitoring Rollback

- Segment Usage
- Monitoring Dynamic Extensions
- Transactions Per Rollback Segment
- Data Volumes in Rollback Segments

Choosing the Number and Size

- Transaction Entry Volume
- Number of Transactions
- Determining the optimal Size
- Creating the Rollback Segments
- Production Versus Data

#### Database Tuning

Tuning Application Design

- Effective Table Design
- Distribution of CPU Requirements
- Effective Application Design

Tuning SQL

Tuning Memory Usage

- Using the Cost-Based Optimizer

Tuning Data Storage

- Defragmentation of Segments
- Defragmentation of Free Extents
- Identifying Chained Rows
- Increasing The ORACLE block size

Tuning Data Manipulation

- Bulk Inserts: Using the SQL\* Loader Direct path Option
- Bulk Deletes : The Truncate Command

Tuning Physical Storage

- Tuning File Fragmentation
- Using Raw Devices

Tuning Logical Storage

- Reducing Network Traffic
  - Replication of Data
  - Using Remote Procedure Calls

**Week - 26**

**Database Security and Auditing**

Security Capabilities

- Account Security
- Object Privileges
- System - Level Roles and Privileges

Implementing Security

- The Starting Point Operating System Security
- Creating users
- Dropping Users
- System-Level Privileges
- User Profiles
- Password Management
- Preventing Password Reuse
- Setting Password Complexity
- Tying Database Accounts
- Password Protection
- Object-Level privileges
- Listing Privileges

Limiting Available Commands: product User Profiles

Password Security During Logins

Password encryption and Trickery

- How Passwords Are Stored
- Setting impossible Passwords
- Becoming Another User

Auditing

- Login Audits
- Action Audits
- Object Audits

Protecting the Audit Trail

Security in A Distributed Environment

**Optimal Backup and Recovery Procedures**

Capabilities

Logical Backups

- Export
- Import

Physical Backups

- Offline Backups
- Online (Archive log)Backups

Implementations

- Export
- Import
- Offline Backups
- Online (ARCHIVELOG) Backups
- Standby Databases

Integration of Backup Procedures

- Logical and Physical Backups Integration
- Database and Operating System Backups Integration

Recovery Scenarios When Using These Procedures Instance Failure

- Media (Disk ) Failure

- Recovering Accidentally Dropped or Altered Objects
- Parallel Recovery
- Recovery Manager

**Week - 27**

**Managing Oracle Financials and Other Packages and Utilities**

General Guidelines for Managing Packages

- Customizing Database Structures
- Security and Data Access Control
- Transaction Management
- File Locations

- Monitoring
- Versioning considerations
- The DBA'S role

Specific Guidelines for Managing ORACLE financials

- Database Structures
- Database Access
- Concurrent managers
- The Demo Database
- Versioning
- File Locations
- init.ora parameters
- Most Active Tables and Indexes
- The Optimizer

Specific Guidelines for Managing Designer/2000

- Database Structures
- init.ora Parameters
- Most Active Tables and Indexes
- The Optimizer

Managing other Packages and Utilities

- Context
- Export
- SQL\* Loader
- Programmatic Interfaces
- Using PRODUCT\_USER\_PROFILE in SQL\* Plus

**Managing Large Databases**

Setting Up the Environment

- Sizing Large Databases
- Sizing Support Areas
- Choosing a Physical Layout
- Partitions
- Creating Fully Indexed Tables
- Creating and Managing Index-Only Tables
- Creating and Managing Bitmap Indexes

Managing Transactions

- Configuring the Batch Transaction Environment
- Loading Data
- Inserting Data
- Deleting Data

Backups

- Evaluating Backup needs and Strategies
- Developing the Backup Plan

Tuning

- Tuning Queries of Large Tables

## **Networked ORACLE**

### **Week - 28**

#### **SQL\* Net V2 and Net8**

Overview of SQL\* Net V2 and Net 8

- Connect Descriptors
- Service names
- Listeners

Using The net 8 Assistant

- The Multi-Protocol Interchange
- Using Connection manager
- Using ORACLE names

Usage Example : client-Server Applications

Usage Example : Database Links

Usage Example : The Copy Command

Tuning SQL\* Net and net 8

#### **Networking in UNIX**

Identification of Hosts

Identification of Databases

Identification of Services

Starting the Listener Server Process

Controlling the Listener Server Process

Debugging connection Problem

### **Week - 29**

#### **Managing Distributed Databases**

Overview of Distributed Databases

- remote Queries
- Remote Data manipulation : Two - Phase commit
- Dynamic Data Replication

Managing Distributed Data

- The Infrastructure : Enforcing Location transparency
- Managing Database Links
- Managing Database triggers
- Managing Snapshots
- Choosing the Refresh Type
- Offline Instantiation of Snapshots
- Purging the Snapshots Log

Managing Distributed Transactions

- Resolving In- Doubt Transactions

Database Domains and Communities

Monitoring Distributed Database

Tuning Distributed Databases

Using the Job Queues

- Managing Jobs

#### **Configuring Client-Server and Network Computing Environments**

Overview of Client - Server Processing

- The Network Computer
- Configuring the Server
- Identifying Available Hosts
  - Identifying Available Services
  - Identifying Available Databases
  - Starting SQL\* net
- Configuring the Client
- Identifying Available Hosts
  - Identifying Available Services
  - Client Machine Specifications
  - Running SQL\* Net
- Toward a Network Computer Configuration

## Visual Basic 6.0

### **Week 30**

#### **Introduction to Application Development Using Visual Basic**

Features of Visual Basic  
Editions of Visual Basic  
Visual Basic Terminology  
Working in the Development Environment  
Event-Driven Programming  
Creating a Program in Visual Basic  
Project and Executable Files  
Visual Basic Reference Materials  
Creating a Simple Application

#### **Visual Basic Fundamentals**

Introduction to Objects  
Controlling Objects  
Properties, Methods, and Events  
Working with Forms  
Introduction to Controls  
Basic Controls  
Creating a Visual Basic Application

### **Week 31**

#### **Working with Code and Forms**

Understanding Modules  
Using the Code Editor Window  
Other Code Navigation Features  
Code Documentation and Formatting  
Setting Environment Options  
Setting Code Formatting Options  
Automatic Code Completion Features  
Interacting with the User  
Using the MsgBox Function  
Using the InputBox Function  
Working with Code Statements  
Managing Forms

Working with Forms

**Variables and Procedures**

Overview of Variables  
Declaring Variables  
Variable Scope  
Using Arrays  
User-Defined Data Types  
Converting Data Types  
Using Constants  
Working with Procedures  
Working with Dates and Times  
Using the Format Function  
Manipulating Text Strings  
Writing Procedures

**Week - 32**

**Controlling Program Execution**

Comparison and Logical Operators  
Using If...Then Statements  
Using Select Case Statements  
Overview of Looping Structures  
Using Do...Loop Structures  
For...Next Statement  
Exiting a Loop  
Controlling Program Flow

**Debugging**

Types of Errors  
Break Mode  
Using the Debug Toolbar  
Using the Watch Window  
Using the Immediate Window  
Using the Locals Window  
Tracing Program Flow with the Call Stack  
Using Visual Basic Debugging Tools

**Week - 33**

**Working with Controls**

Types of Controls  
Overview of Standard Controls  
Using ComboBox and ListBox Controls  
Using OptionButton and Frame Controls  
Working with Selected Text  
Advanced Standard Controls  
ActiveX Controls  
Insertable Objects  
Working with Controls

**Data Access Using the ADO Data Control**

Overview of ActiveX Data Objects  
Visual Basic Data Access Features  
Relational Database Concepts  
Using the ADO Data Control to Access Data

Structured Query Language (SQL)  
Manipulating Data  
Using the Data Form Wizard  
Accessing Databases

**Week - 34**

**Input Validation**

Field-Level Validation  
Using Text Box Properties to Restrict Data Entry  
Using the Masked Edit Control  
Form-Level Validation  
Form Events Used When Validating Data

**Error Trapping**

Overview of Run-Time Errors  
Overview of the Error-Handling Process  
The Err Object  
Errors and the Calling Chain  
Errors in an Error-Handling Routine  
Inline Error Handling  
Error-Handling Styles  
General Error-Trapping Options in Visual Basic  
Error Trapping

**Week - 35**

**Enhancing the User Interface**

Menus  
Status Bars  
Toolbars  
Adding Menus

**Drag-and-Drop Operations**

Overview of Drag-and-Drop Features  
Mouse Events  
Drag-and-Drop Editing Basics  
Adding Drag and Drop

**More About Controls**

Collections  
Using Control Arrays

**Finishing Touches**

User Interface Design Principles  
Distributing an Application  
Creating a Default Project  
Review: Steps to Creating a Visual Basic Program  
Development Resources  
Using the Package and Deployment Wizard

**Advance Java 2.0**

**Week - 36**

**An Introduction to Java**

Java as a Programming Tool  
Advantages of Java  
The Java "White Paper" Buzzwords:  
    Simple  
    Object-Oriented  
    Distributed  
    Robust  
    Secure  
    Architecture Neutral  
    Portable  
    Interpreted and High Performance  
    Multithreaded  
    Dynamic  
Java and the Internet  
Applets at Work  
Server-side Java  
A Short History of Java  
Common Misconceptions About Java

**The Java Programming Environment**

Installing the Java Software Development Kit  
Setting the Execution Path  
Installing the Library Source and Documentation  
Installing the Core Java Program Examples  
Navigating the Java Directories  
Development Environments  
Using the Command Line Tools  
Troubleshooting Hints  
Using an Integrated Development Environment  
Locating Compilation Errors  
Compiling and Running Programs from a Text Editor  
Graphical Applications  
Applets

**Fundamental Programming Structures in Java**

A Simple Java Program  
Comments  
Data Types  
Integers  
Floating-Point Types  
The Character Type  
The Boolean Type  
Variables  
Assignments and Initializations  
Constants  
Operators  
Increment and Decrement Operators  
Relational and Boolean Operators  
Bitwise Operators  
Mathematical Functions and Constants  
Conversions Between Numeric Types  
Casts  
Parentheses and Operator Hierarchy

- Strings
- Concatenation
- Substrings
- String Editing
- Testing Strings for Equality
- Reading the On-line API Documentation
- Reading Input
- Formatting Output
- Control Flow
- Block Scope
- Conditional Statements
- Indeterminate Loops
- Determinate Loops

- Multiple Selections-the switch Statement
- Breaking Control Flow
- Big Numbers
- Arrays
- Array Initializers and Anonymous Arrays
- Copying Arrays
- Command Line Parameters
- Sorting an Array
- Multidimensional Arrays
- Ragged Arrays

### **Week - 37**

#### **Objects and Classes**

- Introduction to Object-Oriented Programming
- The Vocabulary of OOP
- Objects
- Relationships Between Classes
- Contrasting OOP with Traditional Procedural Programming Techniques
- Using Existing Classes
- Objects and Object Variables
- The Gregorian Calendar Class of the Java Library
- Building Your Own Classes
- An Employee Class
- Using Multiple Source Files
- Analyzing the Employee Class
- First Steps with Constructors
- The Methods of the Employee Class
- Method Access to Private Data
- Private Methods
- Final Instance Fields
- Static Fields and Methods
- Static Fields
- Constants. Static Methods
- Factory Methods
- The main Method
- Method Parameters
- Object Construction
- Overloading
- Default Field Initialization
- Default Constructors
- Explicit Field Initialization

- Parameter Names
- Calling Another Constructor
- Initialization Blocks
- Object Destruction and the finalize Method
- Packages
- Using Packages
- Documentation Comments
- How to Insert Comments
- Class Comments
- Method Comments
- Field Comments
- General Comments
- Package and Overview Comments
- How to Extract Comments
- Class Design Hints

### **Inheritance**

- Extending Classes
- Inheritance Hierarchies
- Polymorphism
- Dynamic Binding
- Preventing Inheritance: Final Classes and Methods
- Casting
- Abstract Classes
- Protected Access
- Object: The Cosmic Superclass
- The equals and to String methods
- Generic Programming
- Array Lists
- Object Wrappers
- The Class Class
- Reflection
- Using Reflection to Analyze the Capabilities of Classes
- Using Reflection to Analyze Objects at Run Time
- Using Reflection to Write Generic Array Code
- Method Pointers! Design Hints for Inheritance

### **Week - 38**

#### **Interfaces and Inner Classes**

- Interfaces
- Properties of Interfaces
- Interfaces and Abstract Classes
- Interfaces and Callbacks
- Object Cloning
- Inner Classes
- Using an Inner Class to Access Object State
- Special Syntax Rules for Inner Classes
- Are Inner Classes Useful?
- Are They Actually Necessary?
- Are They Secure?
- Local Inner Classes
- Static Inner Classes
- Proxies
- Properties of Proxy Classes

### **Graphics Programming**

- Introduction to Swing
- Creating a Frame
- Frame Positioning
- Displaying Information in a Panel
- 2D Shapes
- Colors
- Filling Shapes
- Text and Fonts
- Images

### **Event Handling**

- Basics of Event Handling

- Example: Handling a button click
- Selecting Event Listeners
- Example: Changing the Look and Feel
- Example: Capturing Window Events
- The AWT Event Hierarchy
- Semantic and Low-Level Events in the AWT
- Event Handling Summary
- Low-Level Events
- Focus Events
- Keyboard Events
- Consuming Events
- Mouse Events
- Actions
- Multicasting
- The Event Queue
- Adding Custom Events

### **Week - 39**

#### **User Interface Components With Swing**

- The Model-View-Controller Design Pattern
- A Model-View-Controller Analysis of Swing Buttons
- An Introduction to Layout Management
- Border Layout
- Panels
- Text Input
- Text Fields
- Input Validation
- Password Fields
- Text Areas
- Labels and Labeling Components
- Selecting Text
- Editing Text
- Making Choices
- Check Boxes
- Radio Buttons
- Borders
- Combo Boxes
- Sliders
- Menus
- Building Menus

- Icons in Menu Items
- Check Box and Radio Button Menu Items
- Pop-up Menus
- Keyboard Mnemonics and Accelerators
- Enabling and Disabling Menu Items
- Tool Bars
- Tool Tips
- Sophisticated Layout Management
- Grid Layout
- Box Layout
- Grid Bag Layout;
- The gridx, gridy, gridwidth, and gridheight Parameters
- Weight Fields
- The fill and anchor Parameters
- Padding
- An Alternative Method to Specify the gridx, gridy, gridwidth, and gridheight Parameters
- Using No Layout Manager
- Custom Layout Managers
- Traversal Order
- Dialog Boxes
- Option Dialogs
- Creating Dialogs
- Data Exchange
- File Dialogs
- Color Choosers

## **Applets**

- Applet Basics
- A Simple Applet
- Running the Applet Viewer
- Viewing an Applet in a Browser
- Converting Applications to Applets
- Life Cycle of an Applet
- Security Basics
- Pop-Up Windows in Applets
- The Applet HTML Tags and Attributes
- Applet Attributes for Positioning
- Applet Attributes for Code
- Applet Attributes for Java-Challenged Viewers
- The OBJECT Tag
- Java Plug-In Tags
- Passing Information to Applets
- Multimedia
- URLs
- Obtaining Multimedia Files
- The Applet Context
- Inter-Applet Communication
- Displaying Items in the Browser
- A Bookmark Applet
- It's an Applet
- It's an Application
- It's Both! JAR Files
- The Manifest
- Jar Caching
- Self-Running JAR files
- Resources

Optional Packages  
Sealing

**Week - 40**

**Exceptions and Debugging**

Dealing with Errors  
The Classification of Exceptions  
Advertising the Exceptions That a Method Throws  
How to Throw an Exception  
Creating Exception Classes  
Catching Exceptions

Catching Multiple Exceptions  
Re-throwing Exceptions  
A Final Look at Java Error- and Exception-Handling  
Some Tips on Using Exceptions  
Debugging Techniques  
Useful Tricks for Debugging  
Assertions  
Using a Console Window  
Tracing AWT Events  
The AWT Robot  
Profiling  
Coverage Testing  
Using a Debugger  
The JDB Debugger  
The Forte Debugger

**Streams and Files**

Streams  
Reading and Writing Bytes  
The Complete Stream Zoo  
Layering Stream Filters  
Data Streams  
Random-Access File Streams  
ZIP File Streams  
Putting Streams to Use  
Writing Delimited Output  
String Tokenizers and Delimited Text  
Reading Delimited Input  
Random-Access Streams  
Object Streams  
Storing Objects of Variable Type  
Object Serialization File Format  
The Problem of Saving Object References  
Output Format for Object References  
Security  
Versioning  
Using Serialization for Cloning  
File Management

**Week - 41**

## **Java Swing**

- Introduction to Swing
- Swing Packages
- Swing Component Hierarchy
- JApplet
- Icons and Labels
- Text Fields
- Buttons
- CheckBoxes
- RadioButtons
- Combo Boxes
- Menus
- TREES
- Simple Trees
- Tables
- Progress Table Models
- Progress Bar and Progress Monitor
  - Jprogress Bar
  - Jprogress Monitor
- Component Organizer
  - Tabbed Pane
  - Scroll Panes
  - Split Panes
- Look and Feel

## **Remote Method Invocation**

An overview of RMI Application

- Requirements of Distributed Object
  - Remote Interfaces, Objects, and Methods
  - Creating distributed applications using RMI
- Authoring An RMI Server
  - Designing a Remote Interface
  - Implementing a Remote Interface
- Creation of A Client Program
- Compiling the server and the client
  - Compiling the server and the client Programs
- Running the Server and the Client Programs
  - Start the Server

## **Week - 42**

### **Servlets**

- Background
- The Life Cycle of a Servlet
- The Java Servlet Development Kit
- A Simple Servlet
  - Create and Compile the Servlet Source Code
  - Start the Servletrunner Utility
  - Start a Web Browser and Request the Servlet
- The Servlet API
- The javax.servlet Package
  - The Servlet Interface
  - The ServletConfig Interface
  - The ServletContext Interface

- The ServletResponse Interface
- The Single ThreadModel Interface
- The GenericServlet Class
- The ServletInputStream Class
- The ServletOutputStream Class
- The ServletException Class
- The Unavailable Exception Class

Reading Servlet Parameters

Reading Initialization Parameters

The javax.servlet.http Package

- The HttpServletRequest Interface
- The HttpServletResponse Interface
- The HttpSession Interface
- The HttpSessionBinding Listener Interface
- The HttpSessionContext Interface
- The Cookie Class
- The HttpServlet Class
- The HttpSession Binding Event Class
- The HttpUtils Class

Handling HTTP Request and Response

- Handling HTTP GET Requests

- Handling HTTP POST Requests

Using Cookies

Session Tracking

Security Issues

Exploring Servlets

**Week - 43**

### **Network Programming**

Networking Basics

Java and the Net

InetAddress

TCP/IP Server Sockets

A Caching Proxy HTTP Server

Datagrams

Net Worth

### **Java Database Connectivity**

JDBC Introduction

JDBC API

JDBC versus ODBC and other APIs

Two-tier and Three-tier Models

JDBC Drivers

JDBC Products

- JDBC Driver Manager

- JDBC Driver Test Suite

- JDBC-ODBC Bridge

JDBC Driver Types

Basic Steps to JDBC

Establishing a Connection

- Loading Drivers

Setting Up Tables

- Creating a Tables

Creating JDBC Statements  
Executing Statements  
Entering Data into a Table  
Getting Data from a Table  
Retrieving Values from Result Sets  
Using the Method Sets  
Using the getXXX Methods  
Updating Tables  
Time and Data Literals  
Outer Joins  
ResultSetMetaData Interface  
Important Methods of Driver Manager Class  
**Database Security**

## XML (eXtensible Markup Language)

### **Week - 44**

#### **Introduction to XML**

What is XML?  
How does it differ from HTML?

#### **How XML can be used**

Different ways of using XML

#### **XML Syntax**

The simple and very strict syntax rules of XML

#### **XML Elements**

XML Elements, Relationships, Content and Naming Rules

#### **XML Attributes**

How XML attributes can be used to describe elements  
Use of XML attributes to provide additional information about elements

#### **XML Validation**

The difference between a Well Formed and a Valid XML document  
How a DTD is used to define the XML document.

### **Week - 45**

#### **XML support in Netscape and Explorer**

The support for XML in the two most famous browsers

#### **Viewing XML in Internet Explorer**

How to use Internet Explorer to view an XML file

#### **Displaying XML with CSS**

How to use Internet Explorer and CSS to display an XML file

#### **Displaying XML with XSL**

How to use Internet Explorer and XSL to display an XML file

**XML embedded in HTML**

Embedding XML inside HTML documents

**The Microsoft XML Parser**

Use of the Microsoft XML parser to open and manipulate XML documents

**XML in Real Life**

Take a look at some real life use of XML

**Week - 46 to 48**

**Cutting Edge Technology**

(Introductions of the latest software in the Market)

**Week - 49 to 52**

**Project (Simulated)**

