

Certificate in
e-Commerce
under SCVT Craftsman Training Scheme

**Certificate in e-Commerce
under SCVT Craftsman Training Scheme**

Eligibility : 12th 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) Learning basics of E-Commerce management.
- 3) A student can learn various operating systems.
- 4) Learning Database administration & modeling tools like UML.
- 5) To attain optimum skill level for Web page designing.
- 6) Learning various software packages and operating systems like Windows NT, Linux, HTML, DHTML, Oracle 8.0, Flash 4.0 Java 2.0, ASP & JSP etc.
- 7) A student can successfully do Project work.

Minimum Hardware and Furniture required for e-Commerce 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 and UTP cable	2 Hubs (Cable and Connectors as per requirement)
6	132 Column Dot Matrix Printer	1
7	Deskjet or Laser or Inkjet Printer	1
8	Scanner Flat Bed	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 e-Commerce trade under the aegis of SCVT pattern

Software Specification
Windows NT (Server) , Windows NT (Workstation) , DOS , Java 2.0, JDK 1.3, Oracle 8.0, ASP, Internet Connection, Linux 7.0, FrontPage 2000, Flash 4.0, Web Server (Web Logic) IIS 3.0 or later (Windows NT) or Peer Web Services 3.0 or later (NT Workstation). ACP (if using Peer Web Services PWS 3.0), Personal Web Server 4.0 All Softwares should be license version

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 BATCHS 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, VBScript, JavaScript, Pure JSP, ASP in 21 days,

Exam Pattern : 1Hour 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.

e-Commerce Main Topics & Duration

Sr. No	Topics	Course duration in weeks	Total Theory hrs.	Total Practical hrs.
1	Computer Fundamentals & DOS	2	24	24
2	Windows NT 4.0	2	24	24
3	Linux	2	24	24
4	MS-FrontPage 2000	2	24	24
5	HTML, DHTML	2	24	24
6	Macromedia Flash 4.0	2	24	24
7	CGI/PERL	3	36	36
8	Oracle 8 DBA	8	96	96
9	VB Script, Java Script	4	48	48
10	Java 2.0	8	96	96
11	ASP, JSP	2	24	24
12	e-Commerce (Management)	2	24	24
13	Web Server (Web Logic)	1	12	12
14	UML (Introduction)	2	24	24
15	XML (Introduction)	2	24	24
16	Cutting Edge Technology	4	48	48
17	Project (Simulated)	4	48	48
	TOTAL	52 weeks	624 hrs.	624 hrs.

E-Commerce 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

Linux 7.0

Week - 5

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 - 6

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

MS-FrontPage 2000

Week - 7

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 - 8

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

HTML & DHTML

Week 9

Introducing Web Pages and HTML
Creating Your First HTML Document
Stepping Out : Linking Your Way around the Web
Publishing Your HTML Document
Understanding the HTML Document Life Cycle
Site Design and Navigation
Planning and Designing Your Web Page
Formatting the Body Section of Your Pages
Dividing a Window with Frames
Lay Out Technology
Adding Graphics
Presenting Information in Tables
Web Typography

Week 10

Advanced HTML

Optimizing Your Pages for Internet Explorer 5
Optimizing Your Pages for Netscape Navigation 4
Including Multimedia
Using Style Sheets
Developing HTML Forms
Exploring and Navigation Dynamic HTML (DHTML)
Sample Web Page Creation with all possible tags.

Macromedia FLASH 4.0

Week 11

Flash Basics

An Overview Of Flash
Introduction To Flash 4 Interface
Basic Flash Movement

Creating With Flash

Layers
Flash Rotation And Scaling
Flash Drawing Tools:
Line
Oval
Rectangle
Freeform
Symbols
Using Instances Of Symbols In Your Flash Movie
Changing All Instances By Changing The Symbol In Flash
Using A Button Symbol Instance In Your Flash Movie
Adding Interactivity
Using Motion Guides

Week 12

Shape Tweening

Flash Shape Tweening

Sounds

Organizing Sounds In Your Flash Movie
Importing A Sound (.Wav) File Into Your Flash Movie
Adding A Sound Loop To Your Flash Movie
Adding Overlapping Event Sounds To Your Flash Movie
Stopping Sounds In Your Flash Movie

CGI / PERL

Week - 13

Introducing Perl and CGI

Why Perl?
Perl's Ancient History

Building a Perl Script
Variables Scalars and Lists in Perl
Perl and the Common Gateway Interface
CGI Programming Languages

Bringing Perl to the World Wide Web

Setting up an HTTP Server
Perl Meets the World Wide Web
Hellowww.pl Explained
Perl subroutines
Using the *require* Command
CGI and HTML
MIME Defines the Rules
Getting Acquainted with the Samba Server

Connecting Perl to the World Wide Web

Using the CGI Environment
Displaying the CGI Environment
Understanding MIME Types

Using Perl and CGI in the Real World

The Task: Counting your visitors
How Perl Deals with Files
Bringing, your Counter to the Web
Running this Counter

Week - 14

Creating Real-World HTML Forms with Perl and CGI

Building an HTML Form
URLs and CGI
The Power of Regular Expressions

Perl and the Complex Web page

Quizzing Your Visitors
Basic Polling

Creating a Guest Book for Your Web Site

Designing the Guest Book
Adding Guest Book Entries
Displaying the Guest Book
What's in a Form: Security Issues

Creating Dynamic Web Pages: More Tools

Using Server-Side Includes
Generating a Graphical on the Fly
Making a Graphical Access Counter

Week - 15

Monitoring Web Site Activity

Using log files and Simple Reports
Extracting log File Information
Monitoring Activity from a Web page

The Language of the Web

Introducing SGML the Basic of HTML
Defining Document types
Bringing HTML to the World Wide Web
Extending HTML with Applets and Frames

Platforms on the World Wide Web

Choosing a Computer and Operating System
Comparing the Big Tree
Making Choices about Servers and Browsers

Advanced Perl-CGI Tricks

Searching a Database
Taking the search to the web
Writing a more complex search
Programming for the internet

Security on your Web Site

Understanding the security Issues
Protecting Web Pages with Passwords
Maintaining a secure WEB site

Oracle 8 DBA

Database Architecture

Week - 16**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 17

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

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- 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 18

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 19

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 20

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 21

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

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- Inserting Data
 - Deleting Data
- Backups
- Evaluating Backup needs and Strategies
 - Developing the Backup Plan
- Tuning
- Tuning Queries of Large Tables

Networked ORACLE

Week 22

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 23

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

JavaScript Breakup

Week - 24

Introduction to JAVASCRIPT

Versions Of JavaScript
Embedding JavaScript
JavaScript Grammar
Variables And Data Types

Operators

Arithmetic or Computational
Comparison
Boolean
String and Assignment
Special
Statements
Conditionals
Loops
Object Manipulation
Comments

Week - 25

Functions

Defining Functions

Calling Functions

Objects

Document Object Model

Properties

Methods

Creating Objects

Event Handlers

VBScript Breakup

Week - 26

Introduction to VBScript

What is VBScript?

Adding VBScript to Web Pages

The <SCRIPT> Tag

Non-Supporting Browsers

Working with Variables

Declaring Variables

Scope of Variables

Constants

Arrays

Week - 27

More on VBScript

Objects and VBScript

Adding Objects to Web Pages

Linking VBScript with Objects

Controlling VBScript Routines

Conditional Statements

Looping Statements

Using VBScript with Forms

Validating Your Forms

Advance Java 2.0

Week - 28

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 - 29

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 - 30

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 - 31

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 - 32

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 Tokenizes 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 - 33**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 - 34

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 - 35

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

JSP (Java Server Pages)

Week - 36

JSP Overview : The Components of a JavaServer Page

Directives
Actions
Implicit Objects
JSP Scripting

Java Servlets

Practical Applications for Java Servlets
The Java Servlets Architecture
The Life Cycle of a Servlet
A Basic Servlet
Dissecting the BasicServlet

JavaBeans and JSP Concepts

Adding JavaBeans to JavaServer Pages

JDBC and JSP Concepts

Two-and-Three-Tier Database Access Models
JDBC Driver Types
JDBC Basics
Using the JDBC in JavaServer Pages

Configuring the JSP Server

Installing the Tomcat Server
Creating the PUREJSP Web Application

Handling JSP Errors

JSP Translation Time Errors
JSP Request Time Errors

Using the Include Directive

The include Directive
Example: A Standard Title Bar

JavaServer Pages and Inheritance

The Superclass
The JSP Subclass

Using the JSP's Implicit Objects

request
response
pageContext
session
application

out
config
page
exception

Using JSP Standard Actions

<jsp:param>
<jsp:include>
<jsp:forward>
<jsp:plugin>

JSPs and JavaBean Scope

page
request
session
application

JSP and HTML Forms

What is an HTML Form?
Using a JSP to Create an HTML Form
Retrieving Form Data with a JSP

JSP and a Shopping Cart

Creating a Shopping Cart
Integrating the Shopping Cart
Creating a Shopping Cart

JSP and a JDBC Connection Pool Bean

Using a JDBC Connection Pool

JSP and XML

XML and Java
Using XML in a JSP

JSP Communication with Servlets

A Servlets-Only Application Model
A JSP-Only Solution
A Server-Side Implementation of the MVC
A Server-Side Example Using the MVC

JSP and JavaMail

Configuring JavaMail
A JavaMail Example
Using JavaMail in a JSP

ASP (Active Server Pages)

Week - 37

Getting Started with ASP

What are active Server Pages
Running ASP Pages
Creating ASP Pages
Creating your First ASP Pages

Dissecting your First ASP Script

Understanding ASP Scripts
What your ASP Script Returned to the Browser
The ASP Process

Working with Variables

What is a Variables?
Data Types
Integer
Floating-point Numbers
VBScript Operators

Working with Objects

What are Objects?
The Building Blocks of Objects
Built-in ASP Objects
Collections
Working with Objects
Events

Using the Response Object

What Is the Response Object?
Dissecting the Response Object

Working with the Request Object

Accessing the HTTP Headers
Accessing the Environment Variables
Using Cookies

Debugging your ASP Scripts and Handling Errors

Debugging your ASP Scripts
Handling ASP Errors Gracefully

Using Databases

What are relational Databases?
Why use Database?
Working with Database using ASP

Reading from a Database Using ASP

Database and ASP
Connecting to a Database
Reading Data from a Database

Inserting, Updating, and Deleting Database Records

Inserting Records
Updating Records
Deleting Records

Examining the Recordset Object

Enhancing Information Retrieval
Understanding the CursorType and CursorLocation Properties
Sorting Recordsets
Filtering Recordsets

Using SQL Statements to Query Data

What is SQL?

The SELECT SQL Statement
Allowing Users to Query Data

Using Advanced Database Techniques

Advanced Features of the Recordset Object
Using Stored Procedures
The Command Object

Practicing Intelligent Application Design

Why Design Matters
Good Database Design Techniques
Good ASP Design Techniques

E-Commerce

Week - 38

Understanding Electronic Commerce

What is E-Commerce

Overview of E-Commerce

Visiting the Sites
Introduction to Commerce Server

Building a Site

Creating a Site Foundation
Creating a Site
Working with the Server Administration Pages

Enhancing the Product Catalog

Introducing Commerce Server objects
Modifying Wizard-Generated Catalog Pages
Adding Product Search Capability
Implementing Cross-Sell

Managing a Shopping Cart

Managing a Shopping Session
Adding Items to a Shopping Cart
Displaying, Updating, and Removing Items
Implementing Price Promotions
Implementing Upsell

Week - 39

Processing Orders

Understanding Order Processing

Running the Order Processing Pipeline (OPP)
Understanding the Plan Pipeline

Checking Out

Capturing Shopper Information
Computing Order Value
Adding a Scriptor Component

Completing the Purchase Process

Understanding Purchase
Executing the Purchase OPP
Tracking an Order
Securing Business Transactions

Tracking Shopper Information

Using Cookies to Track Shoppers
Using Registration Table to Track Shoppers

Introducing Business-to-Business Commerce

Business-to-Business Commerce
Business Partner Functionality

Web Logic

Week - 40

Introduction

What is WebLogic Server?
Multi-tier Application Architecture
WebLogic Server Architecture
WebLogic Server and Sun Java 2 Platform
WebLogic Server Application Models
Java Development with WebLogic Server

WebLogic Server Administration

WebLogic Server Administrative Facilities
The WebLogic Console
WebLogic Server security
WebLogic Server Clusters

WebLogic Server Developer API's

Developing Applications for WebLogic Server

UML (Unified Modeling Language)

Week - 41

Getting Started

Introduction to UML
Understanding Object-Orientation
Working with Object-Orientation
Working with Relationships

Understanding Aggregations, Composites, Interfaces & Realizations
Introducing Use Cases
Working with Use Case Diagrams
Working with State Diagrams
Working with Sequence Diagrams
Working with Collaboration Diagrams
Working with Activity Diagrams
Working with Components Diagrams
Working with Deployment Diagrams
Extending Understanding the Foundations of the UML
Fitting the UML into a Development process

Week - 42**A Case Study**

Introducing the Case Study
Performing a Domain Analysis
Gathering System Requirements
Developing the Use Cases
Getting into Interactions and State Changes
Designing Look, Feel, and Deployment
Understanding Design Patterns
Modeling Embedded Systems
Shaping the Future of the UML

XML (eXtensible Markup Language)

Week - 43**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 - 44**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 - 45 to 48

Cutting Edge Technology

Week - 49 to 52

Project (Simulated)

