Source book of
C-DAC Certificate Course in MS.NET Programming

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1. **Course Objective:** The objective of this course is to provide the student with an expertise in .Net Programming. After doing the course the student will be able to design, develop and maintain web-based enterprise applications effectively

2. **Eligibility Criteria:** Any Engineering /Science graduate with mathematics up to 10+2 level

3. **Prerequisite:** Sound knowledge of Computing Fundamentals and Fundamentals of Programming.

4. **Teaching Schema:**

Sl. No.	Module Name	Hours
1	Fundamentals of Computer & OOPs Concepts	26
2	Software Development Life Cycle	12
3	Database Technologies	30
4	Foundations of Web Technologies	32
5	MS .Net Window programming	50
6	MS .Net Web based programming	70
7	Management Development Program	60
8	Project	40
	Total	**320**

5. **Suggested Schedule**

Week	Teaching Sessions & Academic Activity
1	Fundamentals of Computer & OOPs Concepts (26/30 Hours) **and** Software Development Life Cycle (4/12 Hours)
2	Software Development Life Cycle (8/12 Hours) **and** Database Technologies (22/30 Hours)
3	Database Technologies (8/30 Hours) **and** Foundations of Web Technologies (22/32 Hours)
4	Foundations of Web Technologies (10/32 Hours) **and** MS .Net Window programming (20/50 Hours)
5	MS .Net Window programming (30/50 Hours)
6	MS .Net Web based programming (30/70 Hours)
7	MS .Net Web based programming (30/70 Hours)
8	MS .Net Web based programming (10/70 Hours) **and** Management Development Program (20/60 Hours)
9	Management Development Program (30/60 Hours)
10	Management Development Program (10/60 Hours) **and** Project (20/40 Hours)
11	Project (20/40 Hours) **and** Exam Break (2 days)
12	1st Day – Exam, Two Days – Project Evaluation, 5th Day – Re-exam

Note: Course Delivery is 6 hours per day, 5 days per week (30 hours per week)

6. Session wise Breakup

Note: Each single session is of two hours duration for all subjects mentioned below.

Fundamentals of Computer & OOPs Concepts (Theory 16 + Lab 10 hours)

Session 1:

Computer Fundamental: Uses of Computer, Hardware, Accessories,
Interfaces and their functions, Computer hardware connectivity
Primary and Secondary storage
Input-output devices
Software, types of software, Operating Systems
Software used in Academic departments and other area.
Computer language, Different types of Programming Language

Session 2:

Operating System (Introduction, The Need of Operating System, Functions of
Operating System User Interface)
What are CUI (Command User Interface) and GUI (Graphics User Interface)?
Data communications and computer networking
Introduction to windows operating systems
The desktop, The window, application window,
document window, Dialog Window
The Icons, Explore Your Computer,
The Start Button and Taskbar
Introduction to Linux
Additional Features of Linux
Getting Started to Linux
Basic Commands

Session 3:

My Computer, Windows Explorer, Starting and Closing Programs,
Managing File and Folders Creating Folders, Finding Files and Folders,
Opening Files and Folders, Renaming Files and Folders
To Move or Copy a File or Folder, To copy a File to Floppy Disk,
To Delete a File or Folder
Creating Shortcuts, Using Clipboard

Session 4:

Shutting Down the Computer
Installing Operating System
Performing a New Installation for Windows
Installing a Software other than OS
Setting up a printer
Uninstalling software

Session 5

Difference between C and C++
OOP Concepts
Class and Objects
Constructors and Destructors

Namespaces

Session6:

Copy Constructors
Polymorphism
Overloading functions
Overloading Operators

Session 7:

Inheritance
Type of Inheritances

Session 8:

Run Time Polymorphism
Virtual Functions

Lab Assignments:

1. Getting Acquainted with the Linux Environment
2. Use various commands in Linux system.
3. Write a program which accept two numbers and print their sum.
4. Write a program which accept principle, rate and time from user and print the simple interest.
5. Write a program to check whether the given number is even or odd (using ? : ternary operator)
6. Write a Student class and use it in your program. Store the data of ten students and display the sorted data according to their roll numbers, date of births, and total marks.
7. Write the definition for a class called **time** that has hours and minutes as integer. The class has the following member functions:
   void settime(int, int) to set the specified value in object void showtime() to display time object time sum(time) to sum two time object and return time.
   a. Write the definitions for each of the above member functions.
   b. Write main function to create three time objects. Set the value in two objects and call sum() to calculate sum and assign it in third object. Display all time objects.
8. Write a program using basic concept of objects and classes to check whether given number is prime or not.
9. Using virtual and pure virtual functions implement hierarchy of computer printers.
10. Design a hierarchy of computer printers. Use multiple inheritances in your hierarchy. Also use friend functions and classes in your program.
11. Write Date and Time classes that allows you to add, subtract, read and print simple dates in dd/mm/yyyy and time in hh:mm:ss forms. Use function overloading in your program.

Software Development Life Cycle (12 Theory Hrs)

Session 1:

Introduction to Software and Software Engineering
Software Process

Session 2:

SDLC and Process Models
Comparing plan-driven vs. Agile methodologies
Transitioning to Agile processes like XP and Scrum

- Mapping Agile principles and values to testing

Session 3:

Requirement analysis
Use case approach
- Use cases & usage scenarios
- Identifying use cases
- Use cases & functional requirements
- Benefits of Use cases

Session 4:

Design concepts

Session 5:

Software testing
- Unit testing
- Integration testing
- Acceptance testing
- Performance testing

Overview of Testing Tool

Session 6:

Project Planning
Case Study using agile methodologies on Provident fund calculation

Database Technologies (Theory 16 + Lab 14 hours)

Session 1:

Introduction to DBMS – What is DBMS, Its need
Areas where DBMS are used
Types of DBMS: Introduction to Hierarchical Model, Network and Relational Models,
Data models (conceptual physical and logical)
Data Integrity & integrity rules
Codd's 12 rules for a Relational Database (conclusion)

Session 2:

Discussion on Normalization
Need for Normalization
Various normalization forms1st normal form, 2nd normal form
3rd normal form,
Introduction to 4th, BCNF, etc
Need for De-normalization

Session 3:

Introduction to SQL,
Discussion on SQL*Plus
DDL Commands
Creating tables
Inserting data into tables
DML & DCL Commands
Grouping Things Together (Group By, Having Clause)

Session 4:

Functions in SQL
Inbuilt Functions and their use in SQL statement

Session5:

Advance Sub-queries (Correlated Sub query, Outer Joins)
Set Operators (UNION, UNION ALL, INTERSECT, MINUS)

Session 6:

Views and Types of Views
Using Temporary Tables
Creating Complex View

Session 7:

Index and usages of the same
Introduction to PL/SQL
Writing PL/SQL Programs
User defined Functions and their use in SQL statement

Session 8

Introduction to Procedures and Stored Procedures
Writing PL/SQL procedures
Discussion on Object Oriented Relational Database

Lab Assignments:

1. Write a program that computes the perimeter and the area of a rectangle. Define your own values for the length and width. (Assuming that L and W are the length and width of the rectangle, Perimeter = 2*(L+W) and Area = L*W. Display the output on the screen using dbms_output.put_line.
2. Write a program that declares an integer variable called num, assigns a value to it, and computes and inserts into the tempp table the value of the variable itself, its square, and its cube.
3. Convert a temperature in Fahrenheit (F) to its equivalent in Celsius (C) and vice versa. The required formulae are:-
   C= (F-32)*5/9
   F= 9/5*C + 32
   Display the output on the screen using dbms_output.put_line. Data has to be input by the user.
4. Convert a number of inches into yards, feet, and inches. For example, 124 inches equals 3 yards, 1 foot, and 4 inches. Display the output on the screen using dbms_output.put_line. Data has to be input by the user.
5. Write a program that enables a user to input an integer. The program should then state whether the integer is evenly divisible by 5. (Use decode instead of IF statement where required). Display the output on the screen using dbms_output.put_line. Data has to be input by the user.
6. Your block should read in two real numbers and tell whether the product of the two numbers is equal to or greater than 100. Display the output on the screen using dbms_output.put_line. (Use decode instead of IF statement where required). Data has to be input by the user.
7. In a PL*SQL block, create a datatype by the name of addr_type. It should contain the following components:-
   name varchar2 (20)
   street varchar2 (30)
   city varchar2 (20)
   state varchar2 (15)

8. Your block should accept the names and addresses of 4 employees in 4 different variables of datatype addr_type. Output the names and addresses of the 4 employees on the screen in the form of Labels as shown below:-

```
*****************************************************************
* Name:-  Jack                 **   Name:-    Scott          *
* Street:- M.G. Road           **   Street:-  Bhosale Marg *
* City:-        Mumbai         **   City:-        Chennai      *
* State:- Maharashtra          **   State:-   Tamil Nadu     *
*****************************************************************
*****************************************************************
* Name:-  King                 **   Name:-    Adams          *
* Street:- Lane No:-2          **   Street:-  P. M. Road     *
* City:-        Nagpur         **   City:-        Bangalore    *
* State:- Maharashtra          **   State:-   Karnataka      *
*****************************************************************
```

9. Input a number and determine whether it is within a given range (for example, between 1 and 10). The low and high values of the range may be input by the user rather than be fixed by the program. Display the output on the screen using dbms_output.put_line.
10. Input three positive integers representing the sides of a triangle, and determine whether they form a valid triangle. Hint: In a triangle, the sum of any two sides must always be greater than the third side. Display the output on the screen using dbms_output.put_line.
11. Check if a given a year is a leap year. The condition is:-
    year should be (divisible by 4 and not divisible by 100) or (divisible by 4 and divisible by 400.) Display the output on the screen using dbms_output.put_line. The year should be input by the user.
12. Write a program that examines all the numbers from 1 to 999, displaying all those for which the sum of the cubes of the digits equal the number itself. Display the output on the screen using dbms_output.put_line.
13. Write a PL*SQL block that reads in a minimum and maximum value for a radius, along with an increment factor, and generates a series of radii by repeatedly adding the increment to the minimum until the maximum is reached. For each value of the radius, compute and display the circumference, area, and volume of the sphere. (Be sure to include both the maximum and the minimum values.). Validate each of the input values to be sure they are positive. If the minimum is typed in place of the maximum, swap the values within the program, and continue execution. Display the results on the screen using dbms_output.put_line.
14. A table consists of the following fields:-

Invoice Number	Varchar2	4
Invoice Date	Date	
Customer Code	Number	1
Product Code	Number	1
Quantity Sold	Number	3

    There are ten customers with codes 0 to 9 and five products with codes 0 to 4. The rates of products are Rs. 15, 35, 42, 51 and 60 respectively. Write a program to find the total purchase in Rs. of each customer and total sale of each product using this table and insert these values in two other tables.
15. Write a PL*SQL block to accept a character string from the user. The user should enter a number spelt out. With the help of PL*SQL arrays, write a program for Word

to number conversion up to 99 crores. The program should cater to Rs. and paise also.
For example, if the user enters:-
Rs. Twelve crores, Thirty Four lakhs, Fifty One thousand, Two hundred and Fifty and Seventy five paise only
The output of your program should be: - 123451250.75 If
the user enters:-
Rs. Nine thousand, Seven hundred and Twenty Eight only
The output of your program should be: - 9728

Foundations of Web Technologies (Theory 20 + Lab 12 hours)

Session 1:

Brief history of the Internet
How the internet works
Internet protocol; HTTP protocol; Domain names; Domain Names Service Servers

Web servers; IIS; Apache server
- Introduction to basic HTMLAligning the Headings
- Anchor Tag
- Paragraph
- Images and Pictures
- Tables

Framesets
New features in HTML5
- New element
- New attribute
- Link relations
- Micro data
- ARIA accessibility
- Multimedia
- 2D and 3D drawing Support

Session 2:

Forms
HTML Controls
- INPUT
- Text Area
- Radio Button
- Check Box
- Dropdown
- List box
- Submit button
- Set button
- Button

Cascading style sheet
Linking a style to an HTML document
In line style
External style sheet
Internal style sheet
Multiple styles

Session 3 & 4

- CSS Introduction
- CSS Syntax
- CSS Id & Class
- CSS How To
- CSS Styling
- CSS Box Model
- CSS Summary

Session 5 & 6

- Java Scripting
- JS Introduction
- JS Statements
- JS Comments
- JS Variables
- JS Operators
- JS Comparisons
- JS Popup Boxes
- JS Functions
- JS Events
- JS Special Text
- JS Objects
- JS RegExp

Session 7 & 8

- jQuery
- Introducing to jQuery
- Selecting the elements
- Bringing pages to life with jQuery
- JQuery Events
- Energizing pages with animations and effects
- DOM with jQuery utility functions

Session 9 & 10

- The Purpose and Nature of XML
- XML Syntax and Structure rules
- XML Document Type Declaration
- XML and Data Binding XML linking mechanisms
- XML style language
- XML parsers

Lab Assignments:

1. Create your bio-data in an HTML Page. Divide it into following sections – Personal information, Family Background, Academic Qualifications, and Experience. Now divide a HTML page into three frames as upper, left and right (main) frames. Write a Heading in the upper frame and put the bio-data sections links in the left frame and on click the section links the respective detail information should be displayed into the right main frame.
2. Write a CSS rule that will change the color of all the elements with attribute CLASS =”Green-Move” to green and shift them down 25 pixels and right 15 pixels
3. Create a form to submit a resume

4. Display a complete date with the name of the month.
5. Create some basic XML documents and check them out in the IE browser for validity.

6. Create a XML document and write DTD for it
7. Create a XML document and validate it
8. Create a DTD and an XSD Schema for a markup language of your own.
9. Create an HTML page with two frames using XML document
   - The top frame should have input text boxes for search criteria. The textboxes are:

     Marks greater than, Marks less than
   - The lower frame will contain a grid, which will load the results of the above query.
10. Create an HTML page representing a departmental store bill:

    Header info: Name of customer
    Date
    Bill No.
    Bill Details

    Consider a purchase of the following items:

Name	Qty	Rate	Amount
Apples	1	24	
Lux Soap	4	15	
Room freshener	1	200	

Prepare a single XML representing the above data. Use databinding to display it. Calculate the total amount through javascript and assign it to the total amount label at bottom.

```
<order>
  <customer>
    <name>Fidelma McGinn</name>
    <phone_number>425-655-3393</phone_number>
  </customer>
  <item>
    <number>5523918</number>
    <description>shovel</description>
    <price>39.99</price>
  </item> <date_of_purchase>1998-10-
  23</date_of_purchase> <date_of_delivery>1998-11-
  03</date_of_delivery>
</order>
```

Create a XSL sheet for the billing XML.

11. Create a registration form using jQuery.
12. Develop static pages (using Only HTML) of an online Bookstore. The pages should resemble:
    www.flipkart.com

    The website should consist of the following pages.
    Home page
    Registration and user Login
    User Profile Page
    Books catalog
    Shopping Cart
    Payment By credit card
    Order Conformation

Validate the Registration, user login, user profile and payment by credit card pages using JavaScript.

MS.Net Window programming (Theory 26 + Lab 24 hours)

Session 1:

- Introduction to .Net Framework
  - Difference between .NET 2.0, .NET 3.5 and .NET 4.0/4.5
  - .NET Framework Overview
- Objectives of .NET Framework 4.5
  - Components of .NET Framework 4.5
  - Development in .NET Framework 4.5

Session 2:

- Execution Process in .NET Environment
- Inside .NET Framework
- CLR
  - Managed and unmanaged code
  - MSIL
- CTS
  - MetaData
  - JITters

Session 3:

- Assemblies-The Building Blocks
- Assembly Benefits
- Assembly Contents
  - Different between a normal .EXE File and a PE file
  - Search order of an assembly
  - Using reflection to build a dynamically extensible application
  - Discovering type Defined in an assembly

Session 4:

- Application Domain
  - Accessing objects Across AppDomain Boundaries
  - AppDomain Unloading
- CLR hosting
- How host use AppDomain
  - Managing CLR by using Managed Code
  - How a Host Gets its Thread back.
- Language Interoperability
  - .NET Framework Class Library
  - The IL dis-assembler
- Migrating to MS .NET

Session 5:

- Create a Satellite Assembly in NET 4.5 Framework
- Create global Assembly in NET 4.5 Framework
- Windows Presentation Foundation
- Windows Workflow Foundation
- Windows Communication Foundation

Session 6:
- Need of C#
  - Strengths of C#
  - C# Basics
  - Program Structure
  - Data Types
  - Variables, Constants, Operators
  - Flow Control in C#

Session 7:
- Operators
- Type Safety
- Object Comparison
- Operator overloading
- User defined cast

Session 8:
- Namespaces & Assemblies
- Arrays
- Simple, multidimensional and jagged array
- Array class
- Enumerations
- Properties & Indexers

Session: 9:
- Preprocessors
- Preprocessor Usage
  - Conditional Compilation
  - Assemblies in detail
- Discussion on Manifests
  - Writing Private Assemblies
  - Writing Shared Assemblies

Session: 10:
- Delegates and Events
- Boxing and Unboxing
- Reflection and the Type class
- Regular Expression
- Attributes

Session: 11:
- Collections
  - Collection Interface
  - List, Queues, Stack,
  - Dictionaries, Hash set

Session: 12:
- Error Handling (Exceptions Handling)
- Checked & Unchecked Statements
- The try, catch, finally
  - Dos & Don'ts of Exception Handling
  - User Defined Exception classes

Session: 13:
- Win Forms

Control class
Standard control and component
Creating user controls
Detailed discussion on Working with database and demo application
Discussion on Windows Communication Foundation

Lab Assignment:

Reading on WPF, WWF & WCF and about C# specification from MSDN

1. Write a program in C# to generate prime numbers between 1 and 1000.
2. Implement a program in C# to find mathematical solutions like finding roots of quadratic equation, checking prime numbers in your program.
3. Write C# application to create namespace and assemblies. Practice them through different scenario.
4. Create hands on programs on Arrays and properties and indexes.
5. Write programs to do matrix operations like addition and multiplication.
6. Write programs and practice to work with delegates, events, boxing, unboxing Manifest.
7. Implement Collections classes in C#.
8. Write a program and do all the exception handling.
9. Write a simple Window application in C#.
10. Create an Employee application, which contains details about the employee run different instances like adding employee, deleting and updating details.
11. Create an appropriate application to store employee object and display on user request.
12. Create a user defined exception to check whether your employee exists in your application developed in question 2 and using the catch and finally block.
13. Using the collection framework define an appropriate interface to user registration application.
14. Create a new array, whose size and component type are not known until runtime, and then modify the array's components
15. Implement following scenario in C#:
    Many of you are probably familiar with the electronic toy named “Simon". Simon is a simple solitaire memory game. The toy is composed of a plastic base with four colored plastic buttons on top. Each button has a different color and a different musical note is associated with each button. The toy “prompts" the player by playing a sequence of randomly each note is played, the corresponding button is illuminated. The player must then try to play the same “tune" by depressing the appropriate buttons in the correct order. If the player succeeds, the game plays a new sequence identical to the preceding sequence except that one additional note is added to the end. As long as the player can correctly reproduce the sequence played by the machine, the sequences keep getting longer. Once the player makes a mistake, the machine makes an unpleasant noise and restarts the game with a short sequence.

MS.Net Web based programming (Theory 34 + Lab 36 hours)

Session 1 & 2:

Introduction and difference between ASP and ASP .Net Application
ASP .NET Web Forms
ASP .NET Programming Model
Web Forms Code Model

The code behind Web Forms
Separation of content & Business logic
Life Cycle of a Web Forms Page
The goals of ASP.Net 4.5
Additional new features of Asp.net 4.5
Application and page Frame works
Application location option
ASP.Net page Structure options
ASP.Net page directives
ASP.Net page events
Dealing with PostBacks
ASP.Net Application Folder
Introduction to Asp .net MVC
Architecture of an ASP .Net MVC application
Understanding Controllers and Action
Create a controller
How actions are invoked
Running Action result.
Understanding views & Models
Create a view using view data
Typed and Untyped Views

Session 3:

ASP .NET Server Controls
Type of server controls
Building with Server Controls
Working with Server Controls events
Applying Styles to server Controls
Html Server Controls
Manipulating pages and server Control
Asp.Net Web Server Control
All basic web Server Control including Xml, Panel, Table, PlaceHolder, Bulletedlist, HiddenField, FileUpload, MultiView and View, ImageMap, Wizard Server control.

Validation Server Controls
Understanding validation
Client-Side versus Server-Side validation
Asp.net Validation Server Controls
Creating User Controls in ASP .NET
ASP .NET Server Controls Template
Customizing the look & feel of ASP .NET Server controls using Templates
Creating Templates
How Templates differ from Styles

Session 4:

Master Pages, Skin, Theme
Working with Master Pages
The basic of Master Pages
Coding a Master Page
Coding a Content Page

Mixing Page Types and languages
Specifying which Master Page to use
Working with Page Title
Specifying Default Content in Master Page
Nested master Page
Caching with Master Page
Using Asp.net 4.5 Themes
Creating yours own Themes
Programmatically Working with Themes
Assigning the page's Theme Programmatically
Assigning a control SkinID Programmatically

Session 5:

ASP .NET Web Application Security
Securing Through IIS
ASP .NET 4.5 Authentication
Windows Authentication
Passport Authentication
Form Based Authentication
ASP .NET Authorization
Working with User.identy
Working with User.IsInRole()
Pulling more information with WindowIdentity
Debugging and Error Handling Techniques
Design Time Support
Immediate and Command Window
ASP .NET Tracing
Page level
Application Level
Viewing Trace Data
Trace Forwarding
TraceListeners
Diagnostic Switches
Web Events
ASP .NET Debugging
IIS Versus ASP .NET development Server
Starting a Debugging Session
Client Side JavaScript debugging
SQL Store Proc Debugging
Exception and error Handling
Handling Exceptions on Page
Handling Application Exceptions
Http Status codes

Session 6 & 7:

Site Navigation
XML Based Site Maps
TreeView Server Control
Menu Server Control
SiteMap Data Provider, Nesting SiteMap files

- Sitemap localization
- Security Trimming
- Threading
- Threading & Synchronization
- Life Cycle of a Thread
- Synchronizing critical data using Synchronization objects
- Thread Pool
- Querying with LINQ
- LINQ to objects
- LINQ to XML
- LINQ to SQL
- Working with XML and LINQ to XML
- Basic of XML
- XML InfoSet
- XSD-XML Scheme Definition
- Editing and XML Schema in Visual Studio 2008/2010
- XmlReader and XmlWriter
- XmalDocument and Xpathdocument
- DataSets
- The XmalDataSource Control
- XSLT
- Database and XML
- For XML AUTO
- SQL Server 2005 and XML Data Type

Session 8:

- Data Binding in Asp.Net 4.5
- Data Source Controls
- Configuring Data Source Control Caching
- Storing Connection Information
- Using Bound List Controls (GridView, Editing GridView Row Data,DetailsView, ListView FormView etc.)
- InLine Data-Binding Syntax
- Data Management with ADO.NET 4.5
- Basic ADO.Net features
- Connection object
- Command object
- DataReader, DataAdapter, DataSet and DataTable.
- DataList Server Control
- Working with Layout templates and multiple Columns
- ListView Server Control
- Creating layout template
- Creating ItemTemplate
- Creating EditItemTemplate
- Creating EmptyItemTemplate
- Creating Item template
- Asynchronous command Execution
- Asynchronous Connections
- How to create a Crystal report

Session 9:

- Files I/O and Streams
  - Working with drivers, Directories, and Files
  - Reading and Writing files
  - Working with Serial ports
  - Networks Communications
  - WebRequest and WebResponse
  - Sending mail
- .NET Remoting
  - Accessing .NET component across Application Domain
  - .NET Remoting Architecture
- Creation of Proxy Objects by the CLR
  - Using the Channel Services to transport the Remotable component across Application Domains
- Using HTTP and TCP Channel
  - Formatter for creating Message & encoding it
  - SOAP & Binary Formatter
- WebServices
  - The Need for Web Services
  - Introducing Web Services
  - The Web Technology Stack and .NET
  - The .NET Alternatives to WebServices
  - Common Web Service Scenarios
- Implementing a Web Service
- Creating a Web Service Project
  - Implementing Web Service Methods, exposing them and controlling their behavior
  - Managing State in an ASP .NET Web Service
  - Debugging Web Services

Session 10:

- Windows Communication foundation
  - WCF Overview
- Contracts
  - Service Contracts
  - Data Contracts
  - Message Contracts
  - Channel
- Channel Shapes
  - Operation Contract and Channel Shapes
  - Channel Listeners
  - Channel Factories
  - ChannelFactory<>
  - ICommunicationObject
  - Binding
  - Cross-Machine Communication Between .NET Applications
  - Local Machine Communication Between .NET Applications
  - Communication Using Basic Web Services
- Communication Using Advanced Web Services

- wsHttpBinding
  - ws2007HttpBinding
  - wsDualHttpBinding
  - Comparing Binding Performance and Scalability
  - Creating a Custom Binding
  - User-Defined Bindings
  - Binding Element
- Exposing a Service Contract over Multiple Bindings

Session 11 & 12:

- Windows Communication foundation
  - Behaviors
- Concurrency and Instancing (Service Behavior)
  - Exporting and Publishing Metadata (Service Behavior)
  - Implementing Transactions (Operation Behavior
- Hosting
  - Hosting a Service in Windows Process Activation Services
  - Hosting a Service in IIS 7
  - Enabling ASMX Features in an IIS-Hosted Service
  - Self-Hosting
  - Self-Hosting in a Managed Windows Service
  - Hosting Multiple Services in One Process
  - Defining Service and Endpoint Addresses
  - Workflow
  - Calling a WCF Service from WF
  - Using a Send Activity
- Writing a Custom Activity
  - Exposing a Service from WF
  - Define the Interface
- Receive Activity
- Configuration in app.config
- Hosting a Service-Enabled Workflow
  - Self-Hosting a Service-Enabled Workflow
  - Hosting a Service-Enabled Workflow in IIS
  - Correlation and Durable Services
  - Long-Running Workflow
  - Handling the Context
- Persisting Workflow State on the Server
  - Controlling Access to Service-Enabled Workflows
  - Declarative Access Control
- Programmatic Access Control

Session 13:

- Localization
  - Cultures and regions
  - Understand Culture Type
- Server side culture declaration
- Client Side culture declaration
- Asp .Net 4.0 recourse files
- Making use of local resources

- Making use of global resources
- Looking at the resource editor
- Deploying Asp .Net Applications
- Asp .Net Applications and the Web Server
- How web server works
- The virtual directory
- Web Farms
- IIS7
- Modular Architecture of IIS7
- IIS7 and asp .net Integrated pipeline
- Building a customized Web Server
- IIS Manager
- Application pool, web sites, delegation
- Deploying a Simple Site

Session: 14:

- View master pages ad view user control
- Understanding HTML Helpers
- Standard HTML Helper
- Custom HTML helper
- DataGrid Helpers
- Validating form data
- Validation Helpers
- Model State
- Prebinding and Postbinding Validation
- Model Binders and action Filters
- Default Model Binder
- Bind with classes and complex classes
- Attribute
- Log Action Filter

Session 15:

- Working with AJAX
- Using of jQuery
- Authenticating users
- Understanding Routing

Session 16:

- Authenticating users
- Authorizing User
- Membership and Role Manager API
- Window Authentication
- Understanding Routing
- Default Route
- Custom route
- Constraints
- Catch–ALL Routes
- Deploying ASP .NET MVC application
- Configuring IIS for ASP .Net MVC
- Mixing ASP .net Web Form and Asp .net MVC
- Bin Deploying an Asp .NET MVC application

Session 17:

Database Access
Repository Pattern
Entity Framework Repository
Database Objects
Entity Framework Data model
Entity Framework Blog Repository

Lab Assignment:

1. Implement the "Hello World!" program in ASP.Net
2. Create a simple ASP.Net MVC application Session.
3. Create a custom view engine
4. Create a product repository and a fake Generic Repository.
5. Create a Simple application in ASP.NET 4.5 in which use all web and server control with all validation.
6. Create a Simple application in ASP.NET 4.5 in which use Master Page
7. Create a Simple application in ASP.NET 4.5 in which use Theme and skin
8. Create a Simple application in ASP.NET 4.5 in which use CSS file
9. Create a Simple application in ASP.NET 4.0 in which we use all following Authentication:
   Windows Authentication
   Passport Authentication
   Form Based Authentication
10. Create a Simple application in ASP.NET 4.5 where we bind data table with all controls
11. Create a Simple application in ASP.NET 4.5 to prepare an Crystal report
12. Creating a simple Web Service Project
13. Create a Virtual directory for an ASP.NET 4.5 Application
14. Create a simple Currency Converter web application that uses the user culture to determine the type of conversion to convert one language to other language.
15. Create a custom Model binder.
16. Create a Simple application using custom Route
17. Create and save an XML document at the server, which contains 10 users information. Write a program, which takes User Id as an input and returns the user details by taking the user information from the XML document.
18. Create an ASP.Net application, which gives the exchange value of INR (Indian Rupees) into equivalent American/Canadian/Australian Dollar values.
19. Create an application to work as a Calculator.
20. Create a program to control Traffic Light (Implemented as a Label with only three background colors-Red, Green, Yellow) and Automobile (Implemented as a Text Box which states its state/movement). The state of the Automobile should depend on the following Light Transition Table. Light Transition Automobile State
    Red ---> Yellow Ready
    Yellow ---> Green Move
    Green --> Red Stopped
21. Write an application to create a report document from a university employee database. The document should contain the following:
    i) Employee code
    ii) Employee Name
    iii) Designation

iv) Address
v) Department
vi)The last twelve month performance summary

22. Assume there is a student database with the following fields:
    I. Student enrollment No.
    II. Student Name
    III. Program
    IV. Address
    V. School of Study

Write an ASP.Net application, which will display all the fields of the student database in the tabular manner.

23. **Car Configuration Application**

We will build Ford's model with these options:
Color - Fort Knox Gold Clearcoat Metallic, Liquid Grey Clearcoat Metallic, Infra-Red Clearcoat,
Grabber Green Clearcoat Metallic, Sangria Red Clearcoat Metallic, French Blue Clearcoat Metallic, Twilight Blue Clearcoat Metallic, CD Silver Clearcoat Metallic, Pitch Black Clearcoat, Cloud 9 White Clearcoat
Transmission - automatic or manual
Brakes/Traction Control - Standard, ABS, or ABS with Advance Trac
Side Impact Air Bags - present or not present
Power Moonroof - present or not present

Configuration options and cost data:
Base Price: $20,000
Color: No additional cost
Transmission: 0 for automatic, $ -815 for standard (this is a "negative option")
Brakes/Traction Control: $0 for standard, $400 for ABS, $1625 for ABS with
Advance Trac: Side Impact Air Bags $0 for none, $350 if selected
Power Moonroof: $0 for none, $595 if selected

24. Body mass index (BMI) is a measure of body fat based on height and weight that applies to adult men and women. BMI can be used to indicate if you are overweight, obese, underweight or normal.

Women tend to believe they look their best at BMI values between 20 to 22 and men are usually satisfied with a BMI of 23 to 25.
If your BMI is 30 or more, that's not good. However, the simple BMI calculation tends to overestimate BMI in people who are muscular or athletic. Therefore, if your BMI score seems too high, you're not too fat, you're just too athletic.

$$BMI = \frac{weight(lb) \times 703}{(height(in))^2}$$

BMI is calculated based on a person's weight and height. The math formula for calculating BMI is shown at right
Simple BMI categories include
Underweight when BMI is less than 18.5
Normal weight when BMI is between 18.5 and 25
Overweight when BMI is between 25 and 30 Too
Muscular (Obese) when BMI is 30 or greater

25. Write a program that allows its user to play the dice game "Doubles"

Rules of the game

Player begins with $100.00

The player places a bet amount and a pair of dice are rolled

- If the two values showing on the pair of dice are the same (they rolled doubles), the player wins **twice** their bet amount
- If the two values showing on the dice are not equal, then the player loses their bet amount

The game ends when the player is out of money

Management Development Program (Theory 30 + Lab 30 hours)

Session 1:

Introduction to communication,

Barriers to communication, Kind of communication,

Confidence building Non-verbal Communication

Session 2:

Fluency and vocabulary

Synonyms

Antonyms

Grammar, Noun Pronoun,

Verb, Adjective, Preposition, Conjunction

Session 3:

Words of Idioms & phrases

Sentence Construction

Pronunciation,

Session 4:

Greeting,

Conversation practice,

Polite Conversation,

Session 5:

Resume Writing,

Covering letter,

Email,

Session 6:

Presentation Skill,

What is group discussion?

Interview skills, Mock interview

Session 7:

Analogy, Series Completion (Number, Alphabet, Letter Series)

Coding-Decoding for Number

Alphabet and Letter

Blood Relations

Session 8:

Puzzle Test: Classification Type questions

Compression Type questions

Sequential order questions

Section based on given conditions

Questions involving family members

Session 9:

Alphabet test

- Order of words
  - Letter words problems
  - Rule detection
  - Alphabetical quibble
  - Word formation
  - Number
  - Ranking
- Time Sequence Test
  - Mathematical operations
  - Logical sequence of words

Session 10:

- Arithmetic reasoning
- Logical reasoning
- Statement-Arguments
- Statement-Assumptions
- Statement-courses of Action
- Statement-Conclusions
- Deriving conclusion from passages

Session 11:

- General Aptitude
- Addition
- Multiplication
- Divisibility
- Squaring
- Cube
- HCF and LCM
- Fraction

Session 12:

- Number system
  - Permutation & combination
  - Probability
- Ratio & Preparation

Session 13:

- Partnership
- Percentage
- Average
- Problem on Ages
- Profit and loss

Session 14:

- Simple Interest
  - Compound Interest
  - Time and work
- Work and Wages

Session 15:

- Trains
  - Streams Pronoun
  - Alligation
- Clock

Pipes and cisterns

Lab Practice:

Faculty needs to conduct GD, presentation for speaking, conducting mock interviews etc.

Faculty needs to conduct tests, Surprise tests, assignments etc.

7. List of Text/Reference Books

Module Name	Title of the Book	Author/Publication	Edition	ISBN
Fundamentals of Computer & OOPs Concepts	Fundamentals of Computers	V. Rajaraman / PHI Learning	5th	9788120340114
	Computer Fundamentals (With CD)	Pradeep Sinha, Priti Sinha / BPB Publication	6th	9788176567527
	Computer Fundamentals	Anita Goel / Pearson	2010 Printing	9788131733097
	Foundations of Computing (With CD)	Pradeep K. Sinha, Priti Sinha / BPB Publication	3rd	9788176566636
	Thinking in C++ : Introduction to Standard C++ Vol – 1	Bruce Eckel / Pearson	2nd	9788131706619
	The C++ Programming Language	Bjarne Stroustrup / Pearson	3rd	9788131705216
	Object-oriented Programming Using C++	Dehuri Satchidananda, Jagadev Alok Kumar, Rath Amiya Kumar / PHI Learning	1st	9788120330856
Software Development Life Cycle	Software Engineering: A Practitioner's Approach	Roger S. Pressman / Tata McGraw – Hill Publication	7th	9780071267823
	Software Engineering	Ian Sommerville / Pearson Publication	9th	9788131762165
	Succeeding with Agile: Software Development Using Scrum	Mike Cohn / Pearson Publication	2010 Printing	9788131732267
	Software Engineering: A Precise Approach	Pankaj Jalote / Wiley Publication	2010 Printing	9788126523115
	Fundamentals of Software Engineering	Rajib Mall / PHI Learning	3rd	9788120338197
Database Technologies	Oracle Database 11g The Complete Reference, 1st Edition	Kevin Loney / Tata McGraw - Hill Education	2008 Printing	9780070140790
	Mastering Database Technologies	Ivan Bayross / BPB Publication	2005 Printing	9788183331302
	Database Management Systems	Raghu Ramakrishnan, Johannes Gehrke / Tata McGraw - Hill Education	3rd	9780071231510
Foundations of Web Technologies	HTML5 Black Book: Covers Css3, Javascript,XML, XHTML, Ajax, PHP and Jquery (With CD)	Kogent Learning Solutions Inc. / DreamTech Press	2011 Printing	9789350040959

	Internet and World Wide Web : How to Program	Harvey M. Deitel, Paul J. Deitel / Pearson Education	4th	9788131725221
	XML - How to Program XML : How to Program (With CD)	H. M. Deitel, P. J. Deitel / Pearson	1st	9788131716854
MS.NET Programming	Beginning ASP.NET 4.5 in C#	Matthew MacDonald / Apress	1st	9788132210054
	.Net 4.5 Programming 6-in-1: Black Book	by Kogent Learning Solution/ Wiley	2013 Printing	9789350045107
	Pro C# 5.0 and the .NET 4.5 Framework	Andrew Troelsen / Apress	6th	9788132209652
	Beginning ASP .Net 4.5 in C# and VB	Imar Spaanjaars /Wiley India	2012 Printing	9788126539130
	Introducing Microsoft .NET 4.5	Alex Mackey, Mahesh Krishnan, William Tulloch / Dreamtech Press	2nd	9788132210733
	CLR via C#	Jeffrey Ritchter / Dreamtech Press	4th	9789351190905
	ASP.Net MVC Framework	Adam Freeman, Steven Sanderson / Apress	3rd	9788132204176
Management Development Program	Quantitative Aptitude For Competitive Examinations	R. S. Aggarwal / S. Chand Publishing	17th Edition	9788121924986
	A Modern Approach To Verbal and Non-Verbal Reasoning	R. S. Aggarwal / S. Chand Publishing	Year 2012 Edition	9788121905510
	How to Prepare for GD and Interview (With CD) 3rd Edition	Hari Mohan Prasad, Rajnish Mohan/TMH	2010	9780070706347
	High School English Grammar & Composition Revised Edition	Wren, Martin / S. Chand Publisher	2011 Edition	9788121900096
	Communication Skills Publication Year 2011	Sanjay Kumar, Pushp Lata / Oxford University Press	2011 Edition	9780198069324
	Professional Communication Skills	Praveen S R Bhatia / S.Chand Publishing	2011 Edition	9788121920926

8. Evaluation Guidelines

8.1. Evaluation

Evaluation is a necessary and essential part of conducting the C-DAC Certificate Course in MS.Net programming, as it provides important feedback and inputs to both the institute as well as the student. The institute gets an idea about the relative performance of each student, which also serves as feedback about the design and conduct of the programme. The student gets a clear picture of his academic standing, individually and in comparison to his fellow students.

In order to ensure timely and efficient evaluation and certification of all students, the following guidelines are being issued and should be followed religiously.

8.2. Evaluation Methodology

8.2.1 Each centre should have a Designated Responsible Member (DRM) for Evaluation.

8.2.2 The DRM Evaluation would be responsible for coordinating all activities relating to evaluation at the training centre and for communicating with CDAC ACTS, Pune.

8.2.3 Evaluation is a compulsory part of the process of obtaining C-DAC Certificate Course in MS.Net Programming. All students are required to pass in each subject of the course in order to be eligible to receive the C-DAC Certificate.

8.2.4 The faculty of every subject should outline the objectives of the evaluation to be conducted for that particular subject, so as to enable the student to prepare himself/ herself properly.

8.2.5 The performance of students is constantly evaluated through surprise quizzes, hourly examinations, assignments throughout the term, submission of term reports, presentations and final examinations at the end of the course.

8.2.6 Mode of exams will be in online / offline, but prior information will be given by C-DAC, ACTS about the mode of the exam and it will be final.

8.3. EVALUATION METHODS

8.3.1 Course End Evaluation

After completion of the all subjects, a written examination CEE (Course End Examination) will be held, which will test the knowledge of the students of each subject and it is a compulsory part of the evaluation. Conducting CEE involves performing duty with responsibility. A small mistake in the process may hamper the whole system. Everyone has to play their role in an effective manner. It is a joint effort work which has to be carried out in a combined way. Right from receiving question paper from ACTS, C-DAC to sending the OMR answer sheet (in case of offline exam) and the response file (in case of online exam) for evaluation dealt with lot of responsibility.

ACTS, C-DAC in its pursuit of excellence, believes in providing a congenial atmosphere to the students during all exams in order to get them to perform at their optimum level. However, there are certain norms which the students are expected to be aware of and observe both in letter and spirit. These norms are:

8.3.1.A Impersonation may lead to permanent expulsion from the Institute.

8.3.1.B Cell phones are strictly prohibited in the exam hall/room.

8.3.1.C Valid ID card is mandatory for entry to the exam room / hall.

8.3.1.D Punctuality is most important at all times. Students are expected to check their exam location and be seated at least 10 minutes prior to the exam time.

8.3.1.E In case of offline exam, as per ACTS, C-DAC policy all question papers are to be returned along with the answer script.

8.3.1.F Students are required to bring their own stationary as no lending or borrowing is permitted during examination.

8.3.1.G Programmable calculators or any other kind of electronic devices are strictly prohibited inside the exam area.

8.3.1.H Indiscipline in the exam hall/ room will not be tolerated.

8.3.1.I Possession of any written material related to the subject or communication with their fellow students, will result in disciplinary actions.

8.3.1.J A student must score a minimum of 40 percent marks, in order to successfully clear the course.

8.3.1.K It is recommended that the students should ensure 100% attendance for each course. 10% absences are permissible, only in case of illness, or emergencies. These have to be approved by the Centre Head. Approval is contingent upon the evidence provided.

8.3.1.L There will be 150 questions to answer in 3 hours duration in CEE as per the following distribution mentioned in Table – 1.

Sl. No.	Module Name	Hours	No. of Questions
1	Fundamentals of Computer & OOPs Concepts	26	15
2	Software Development Life Cycle	12	5
3	Database Technologies	30	15
4	Foundations of Web Technologies	32	15
5	MS.Net Window programming	50	35
6	MS.Net Web based programming	70	35
7	Management Development Program	60	30
8	Project	40	Grade
Total		**320**	**150**

Table-1

8.3.2 GENERAL GUIDELINES FOR AWARD OF GRADES:

The marks of obtained in the CCEE shall be calculated to get total marks out of 100. The rounding off shall be done on the higher side. The grades shall be awarded on the basis of cut off in the absolute marks, as mentioned in Table – 2.

Lower range of marks	Grade	Upper range of marks
91	≤ A+ <	100
81	≤ A <	90
71	≤ B+ <	80
61	≤ B <	70
51	≤ C+ <	60
41	≤ C <	50
0	≤ F <	40

Table 2

8.3.3 Guidelines of CEE:

CEE will be conducted normally before the commencement of Project work of the course.

The written examination should be of 180 minutes duration. It should consist of objective questions. A typical objective type exam paper should contain the following types of questions: –

- Multiple choice
- Yes or No
- True or False

Objective questions are useful in testing the recognition and recall abilities of students. They also help in keeping the exam short and easier to evaluate.

For the pure objective type question papers, there will be 40 objective type questions with 4 maximum answer options having only one correct option. The value of each objective type question is of one mark only. There will not be any negative marks for the wrong answers given by the students.

8.3.4 Guidelines for setting Question Papers:

While setting the question papers for theory Exam the following weightages should be assigned as per the difficulty level of the questions.

Levels	Requirements	Weightage
Level A – Easy	Requires elementary knowledge which may be obtained by attending all lectures and completion of mandatory lab assignments	25%
Level B – Intermediate	Requires thorough study of all course material, attendance at all lectures and completion of mandatory assignments	50%
Level C – Difficult	Requires study and lab work beyond the prescribed course material and mandatory assignments	25%

8.4. Guidelines for generating questions:

8.4.1 Question paper setter has to use sample paper format provided by C-DAC, ACTS Pune

8.4.2 Mention the subject name without fail.

8.4.3 Language of the question should be easy to understand.

8.4.4 The answers must have relevant objective type choices and “only one” correct answer.

8.4.5 The questions must be prepared by referring appropriate books, reference books, reference material, and course material having good information.

8.4.6 The question must be created by the domain expert afresh and should not be copied directly from any book, website, existing previous question papers etc.

8.4.7 The question should be unique and should have not been published anywhere.

8.4.8 Please mention the source of the question wherever possible, as it may help us in referring the same for detailing if required.

8.4.9 The caliber of the question should suffice the growing need of competition.

8.4.10 The question paper should have questions covering the entire syllabus.

8.4.11 The questions have to be typed in MS Word with “Arial” having letter size 12 point. Do not bold any letter, word or sentence in any part of the question paper.

8.4.12 It is essential to give password to the word document and send/tell the password separately.

8.4.13 It is essential that utmost care is taken at your end to maintain the secrecy of the soft copy at all time.

8.4.14 An expert team will review all questions. The questions will be filtered as per following:

- If the question is incomplete
- If the answer of the question is wrong
- If the question is not there in the syllabus
- If the question appears more than once

If the question is too lengthy

- If the question is irrelevant
- If the options to the questions are irrelevant

8.5. Template for generation of Questions

Date:

Question generated by: Mr. /Ms.

Subject Name:

Q. No.
Question: <Text of the question>

Answer Choices
A:
B:
C:
D:

Difficulty Level: Easy / Intermediate / Difficult

Reference: (Name of books)
(If question taken from book) (Mention name of the book, author, ISBN)
Total Number of Questions Generated: _____

8.6. Template for Answer Key:

Module name:	**<Name of the Module>**		
Question No.	**Answer Keys**	**Question No.**	**Answer Keys**
1		76	
2		77	
3		78	
4		79	
5		80	
6		81	
7		82	
8		83	
9		84	
10		85	
11		86	
12		87	
13		88	

14		89	
15		90	
16		91	
17		92	
18		93	
19		94	
20		95	
21		96	
22		97	
23		98	
24		99	
25		100	
26		101	
27		102	
28		103	
29		104	
30		105	
31		106	
32		107	
33		108	
34		109	
35		110	
36		111	
37		112	
38		113	
39		114	
40		115	
41		116	
42		117	
43		118	
44		119	
45		120	
46		121	
47		122	
48		123	
49		124	
50		125	
51		126	
52		127	
53		128	
54		129	
55		130	
56		131	
57		132	
58		133	
59		134	
60		135	
61		136	
62		137	

63		138	
64		139	
65		140	
66		141	
67		142	
68		143	
69		144	
70		145	
71		146	
72		147	
73		148	
74		149	
75		150	

8.7. **Evaluation of answer papers:**

For Offline mode: Use of OMR sheets will be useful for processing the result of multiple choice exams. OMR is an effective way to collect data, process for the result and also it takes less time with greater accuracy in less effort. Centres need to follow the best way for scanning the OMR sheets, process the result and publish the result. Centres which are not using OMR can user OCR to conduct the exams and evaluate the students. Centre which are not using OMR or OCR can evaluate the students manually and process the result.

For Online mode: Course end exam will be through online s/w. Evaluation will be through that Exam s/w.

If a student requests for re-evaluation then the student has to pay Rs 150/- and it should be routed through training centre. The Re-evaluation fee should be paid to respective C-DAC training Centres, in case of Authorized Training Centres associated to C-DAC, Pune, payment to be made in favour of "C-DAC, ACTS" and payable at Pune. (This is applicable only for theory exam)

8.8. **Moderation:**

Grace marks would be awarded as per the methodology below:

8.8.1. Maximum of 4% of total term end theory exam marks can be awarded to a candidate.

Sr. No.	Name of the course	Total Marks	Maximum grace marks for the course
1	C-DAC Certificate Course in MS.Net Programming	150	6

On completion of the moderation exercise the revised marks should be updated in the marks database.

8.9. **Re-examinations:**

The following conditions will be applicable for the course end re-exam:

8.9.1. Students who do not appear for an exam on the scheduled date will not have an automatic right to re-examination. Only those students who, in the opinion of the centre/course coordinator have a genuine reason for being absent may be allowed to appear for a re-exam.

8.9.2. Students who have failed an exam may be allowed to appear for a re-exam.

8.9.3. The re-exam should be conducted following the same process as the regular examination.

8.9.4. Students, who failed/remained absent in the Course End Examination conducted by C-DAC, shall be allowed to appear in the re-examination only once.

8.9.5. Students who remain absent or fail in the re-examination will not get any further chance for appearing for a third attempt or further. In such case the candidate can receive the Performance Statement and the certificate of participation without any grade.

8.9.6. On evaluation of their answer sheets 20% of the marks obtained by the students will be deducted (towards de-rating for re-examination) for arriving at the final score, i.e. in order to clear the module test the student has to score a minimum of 50% marks instead of 40%.

8.10. **Project Module:**

8.10.1. Project work should be start as soon as possible.

8.10.2. After that students should be ready with all mandatory documents with database design and then completion of all teaching modules they can do the project.

8.10.3. Performance in the Project module will be awarded in grade. The Project grade will be mentioned separately on the certificate & will have no effect on the overall grade obtained by a student.

8.10.4. Students may do industry-sponsored projects, but will be required to do the project work within the centre.

8.10.5. Evaluation of the Project module will take place as following:

8.10.5.1. Internal evaluation will be take place at mid of the module

8.10.5.2. External evaluation will take place at the end of the module

Based on both evaluations, final grade will be awarded & communicated to C-DAC ACTS, Pune

8.11. **Guidelines for Project Evaluation**

Evaluation of Project work needs to be carried out as per the following guidelines:

a. Literature study.
b. Submission of abstract for their colloquium/seminar/project work along with the references.
c. Submission of the detailed work report
d. Two presentations each for 15 minutes on the work done restricted to 15 – 20 slides followed by evaluation.
e. The evaluation for 100 marks will be splited up as follows:

i.	Literature survey	– 10
ii.	Contents of the project work	– 20
iii.	Contents Flow of Presentation	– 15
iv.	Communication and Presentation Skills	– 20
v.	Depth of Knowledge in the topic	– 15
vi.	Viva Voce	– 15
vii.	Attendance	– 5

f. Soft copy of the presentation should be submitted to C-DAC.

8.12. **Ensuring Security of Evaluation data/records:**

8.12.1. Ensure that all data relating to evaluation of students is stored in a secure place that cannot be accessed by unauthorized personnel.

8.12.2. All question papers must be prepared and stored in a separate area specifically designated for the purpose.

8.12.3. Whenever any external faculty sets a question paper, ensures that he should follows the guidelines given by C-DAC ACTS Pune.

8.12.4. Ensure that only one copy of any question paper is prepared in physical (printed) form for review and revision.

8.12.5. When the question paper is finalized, print out one master copy and gets it signed by the paper setter, Reviewer and DRM Evaluation.

8.12.6. Prepare required number of photocopies of the question paper and store them in a safe and secure location before the exam.

8.12.7. The data relating to evaluation of students, such as soft copies of question papers and answer keys, student marks database and performance statements etc. must be kept in a separate domain/directory which is accessible only to authorized personnel. Ensure that the data is regularly backed up.

8.12.8. The question papers for the theory as well as the laboratory examinations at all the centres will be set by CDAC, ACTS Pune. The centres according to guidelines provided by C-DAC, ACTS Pune, will conduct the evaluation of the laboratory and assignments locally.

Note: The Evaluation Guidelines, Rules and Regulations issued by C-DAC, ACTS – Pune from time to time shall be binding on all the centers and all the students. C-DAC, ACTS, Pune reserves the right to add, modifies or deletes any or entire contents of this document at any point of time without giving any notice. It's the responsibility of the centre coordinator to inform such changes to the students in form of a formal notice with a duly signed copy to C-DAC, ACTS, Pune.

9. Requirements (S/W and H/W)

Computing Facilities for Java Programming	
A. Servers	
1. Unix / Linux / Server	
2. Windows 2003 / Windows Server 2008	
3. Application / Dummy Servers Configured for various modules	
Severs Configuration	
1. Processor (min 3.2 Ghz)	
2. RAM (min 4 GB)	
3 HDD (min 500 GB)	
4. Network Card	
5. AGP Card with 4/8 MB VRAM	
6. 2 Serial ports, 1 parallel port, 104 Keys Keyboard.	
7. CD Drive / DVD Drive	
B. Clients Machines Configuration	
1. Processor (Min 3.2 Ghz)	
2. RAM (Min 2 GB)	
3. HDD IDE / EIDE (min 250 GB)	
4. AGP-64 bit Card with 8 MB / 4MB VRAM	
5. PCI Network Card 10/100 Base T, UTP Ethernet	
6. Multimedia Kit	
C. Network	
1. 10/100 Base T UTP Hub(s)	
2. UTP CAT-5 Cabling with RJ-45 connectors	
3. UTP Patch Cables	
D. Communication and Internet	
1 Internet Access	
2. ISDN Connectivity	
3. Modem 28.8/ 33 / 512 KBPS	
E. Printers	
1. Laser Printer	
F. Additional Lab Equipments	
1. Amplified Speakers, Headphones & Mikes	
2. Hi-Lumen OHP	
G. Module Specific Software Environments, Operating Systems and Hardware	
1. Fundamentals of Computer & OOPs Concepts	MS Visual Studio 2012 (VC ++)
2. Database Technologies	MS SQL 2012
3.Foundations of Web Technologies	MS Frontpage, Visual Interdev
4. MS.NET 4.5	MS Visual Studio 2012
H. Operating System Software Common	**For all Course modules**
1. Windows Server along with Windows workstations (Windows latest)	Yes / No
2. Linux (Open SUSE) latest version	Yes / No