# DOT NET Syllabus (6 Months)

**THE COMMON LANGUAGE RUNTIME (C.L.R.)**

- CLR Architecture and Services
- The .Net Intermediate Language (IL)
- Just- In- Time Compilation and CLS
- Disassembling .Net Application to IL
- Strict Type Checking

**.NET FRAMEWORK CLASS LIBRARY**

- System Namespace
- System .Object Namespace
- System .Collection Namespace
- System .Type
- Exception

**SYNTAX & DATA TYPES**

**LANGUAGE FUNDAMENTAL**

- Data type and Control Constructs
- Value and Reference Types
- Declaring and Initializing Variables
- Unicode Characters and Strings
- C.T.S Type
- Implicitly Typed Local Variables
- Conditional Syntax
- C# Operator
- Looping Syntax
- Structure

**ARRAY & STRING**

- Arrays in General
- Declaring of different type Arrays
- Initializing Arrays
- Accessing element of different type Array Members
- Arrays of Objects
- Structure type array
- Using for each with Arrays
- Understanding System. String class and its various operations

## OOPS CONCEPTS CLASSES

- Encapsulating Attribute
- Class & Object Creation
- Define Constructor
- Type of Constructor
- Define Methods and their Type
- Overloading Methods and Constructor overloading
- Define Property and their Types
- The Memory Allocation with New Keyword
- Passing Initial Values with Constructor
- Invoking Property and Methods

## INHERITANCE

- Implementing Inheritance Hierarchies
- Class Access Modifiers
- Method Overloading, Overriding and Hiding Concepts
- Run time polymorphism
- Abstract and Sealed Class
- Exposing Interface
- Implementation Interface in a Class
- Play with Namespaces
- Interface Polymorphism
- Operator Overloading
- Partial Class

## EXCEPTION HANDLING

- Means of Error, Bug and Exceptions
- Role of .Net Exception Handling
- System Level Exception
- Application Level Exception
- Try and Catch Block
- Handling Multiple Exception
- Finally Block
- Throw Exception on Request Custom Exception

## EVENTS AND DELEGATES

- Event Driven Programming
- Delegate, Event and its association
- Synchronous and asynchronous operation with delegate
- User Defined events and delegates
- Multicasting with Delegates
- Anonymous methods

- Anonymous Methods with events
- Generic Delegates

## MULTITHREADING

- Understand multithreading process
- The System Threading namespace
- The Thread and Thread Start class
- Thread life cycle
- Thread Safety Concept
- Thread synchronization
- Understanding Thread Pool
- Understanding Role of Thread Background Worker Component

## I/O OPERATIONS WITH FILE SYSTEMS

- File and Directory Class
- Marshal Classes, File Info and Directory Info
- Path Class
- Drive Info Class
- Stream Object with Files: Stream Reader, Stream Writer
- File Stream and Memory Stream

## INTRODUCTION TO ADO.NET

- How ADO.NET works and how it differs from ADO?
- Evolution of ADO to ADO.NET

## ADO.NET AND IT'S ARCHITECTURE

- Connection Object
- Command Object
- Dataset
- Data Reader Object
- Data Adapter Object
- Concurrency and the Disconnected Data Architecture
- Provider

## DATA SET

- Creating Tables in Dataset
- Data Column
- Data Row
- Data Table

- Updating, Inserting and Modification in Data Table
- Saving Changes into Data Base using Command Builder
- Working With Command and Connection

## CONNECTIONS AND COMMAND OBJECT

- Connection Object
- Command Object
- Execute Non Query
- Execute Scalar

## DATA READER

- Reading Data in Connected Environment
- Moving and Accessing Value of Record
- Execute Reader

## DATAGRIDVIEW & DATA BINDING

- Row State Filter and Sort Property
- Update records via a Datagridview
- Insert records via a Datagridview
- Delete records via a Datagridview

## TRANSACTION

- Introduction of Transaction (ACID)
- Transaction Class
- Method and Property
- Commit and Rollback

# ASP.NET

## INTRODUCTION TO WEB FORM

- Need of Web Application
- Http Protocol
- Static and Dynamic Page
- Concept Working of IIS and Browser
- Differences between ASP and ASP.NET

## INTRODUCTION TO HTML CONTROLS

- Creating a Simple HTML Page
- Html Tags
- Hosting a HTML Page
- IIS virtual Directory
- Request Transfer Throws Get and Post Methods

## SERVER PAGES USING ASP.NET

- Creating sever pages
- Architecture of handling request In Web server
- Http request object
- Http response object
- Understanding post back

## UNDERSTANDING PAGE LIFE CYCLE

- Understanding of Application Life Cycle
- Page Life-cycle Stages
- Life-cycle Events
- Autoeventwireup
- Tracing and debugging asp.net pages

## STATE MANAGEMENT

- Client side State Management
- Introduction of stateless process
- Http Cookies
- Query String Method

- View State
- Hidden Field
- Server Side State Management
- Http Session
- Http Application
- Global.asax
- Web.Config

**SERVER CONTROL FORM VALIDATION**

- Working with Range, Regular Expression & Compare
- Required Field Validator Controls
- Use Control to Validate Property
- Custom Validator Control
- Implementation of Client and Server Side Validation
- Working with Validation Summary

**WEB FORM CONTROL**

- Textbox
- Check Box
- List Box
- Dropdown List Control
- Add Rotator Control
- File Upload Control
- Multi View Control
- Login Control
- Image control
- Radio button control

**DATA BINDING SERVER CONTROLS**

- Use of Data Binding Control
- Type of Data Binding Control (Formatted and Unformatted)

**Working with Grid View Control**

- 
  o Data binding with Grid View
  o Working with Column Collection
  o Using Paging
  o Sort
- Working with Data List Control
  o Working with Template
  o Working with Data List Events

## MASTER PAGES

- Introduction and Need of Master Page
- Creating a Master Page
- Default Contents
- Master page with CSS and table layout
- Applying Master Page through Configuration File
  - Dynamic setting a Master Page
  - Nested Master Page
  - Master Page and Relative Path

## ASP.NET WEB SECURITY

- Windows
- Forms
- Passport

## ASP.NET AJAX

- Introduction of AJAX
- Role of script manager
- Understanding and working with update panel
- Understanding and Working with Timer control
- Creating AJAX enabled website
- Creating an AJAX enabled web service

## SKIN & THEME

- Cascading Style Sheets
- Scoping Themes
- Themes Vs Cascading Style Sheets
- Create a Skin
- Apply a theme to a Web Site

## CASCADING STYLE SHEET

- Creating style sheet
- Apply Style Sheet
- Creating Rules
- Creating Elements setting

## MORE DATA BINDING SERVER CONTROLS

- Working with Form View Control
  - Working with Template
  - Working with Form View Events

- Working with Details View Control
  - Working with Template
  - Working with Details View Events
  - Understand Event Bubbling

## ASP.NET CACHING

- Introduction ,Need ,Type of caching
- Page output Caching
- Declarative output caching
- Time duration and location setting
- Parameter caching settings
- Page fragment Caching
- Time duration setting
- Parameter caching Setting
- Parameter caching setting
- Caching with HTTPCachePolicy Class
- Post Cache Substitution & Fragment
- Data Caching
- Managing Data into cache
- XML classes

# LINQ  Syllabus

## INTRODUCTION

- Introduction of LINQ
- Understanding Automatic Properties
- Understanding Initializers
- Understanding Type Inference
- Understanding Anonymous Types
- Understanding Generics
- Understanding Lambda Expressions
- Understanding Extension Methods

## LINQ to SQL

- Performing standard Database Commands with LINQ to SQL
- LINQ to Objects Versus LINQ to SQL
- Selecting with LINQ to SQL
- Inserting with LINQ to SQL
- Updating with LINQ to SQL
- Deleting with LINQ to SQL
- Dynamic Queries
- Debugging LINQ to SQL

## WINDOWS COMMUNICATION FOUNDATION (W.C.F.)

- The role of W.C.F
- W.C.F project template
- Understanding WCF Addressing
- Understanding WCF Bindings
- Understanding WCF Contracts
- Understanding WCF Endpoint
- Composition of basic W.C.F
- Building a W.C.F service
- Hosting a W.C.F service
- Building a W.C.F client application