deerwalk
training center

DOT NET

Dot Net Beginners: Level 1

Nature of the Course: Theory + Practical
Total Hours per Day: 2 Hours
Course Duration: 4 Weeks

Course Summary

The DTC – Dot Net course is targeted for beginners who want to learn how to think and write meaningful pieces of codes or read Dot Net codes written by someone else. This course teaches how to map literary description of a problem (requirement) to an application/library coded in Dot Net. This is a core basic level course that is essential for anyone who has no prior programming experience but wishes to be a professional Dot Net engineer in future.

Completion Criteria

After fulfilling all of the following criteria, the student will be deemed to have finished the Module:

- Has attended 90% of all classes held.
- Has received an average grade of 80% on all assignments
- Has received an average of 60% in assessments.
- The tutor believes the student has grasped all of the concepts and is ready to go on to the next module.

Required Textbooks

- Andrew Troelsen and Phillip Japikse, “Pro C# 9 with .NET 5”, Apress.
- Ryan Turner, “The Ultimate Beginners Learn C# Programming Step by Step”, N.B.L Publishing.

Prerequisites

- Fundamental understanding of programming, bits/bytes, procedures, classes, and computer architecture. It's absolutely acceptable if you only have a theoretical understanding of programming, but you should be certain about what programming is and what you intend to gain from this session.
- Willing and eager to spend at least 10-20 hours (varying from student-to-student) per week outside of the training class to read/write codes in Dot Net (self-study and practice).
- If you are only interested in theory and have no interest/patience in spending at least 10 hours every week throughout the duration of the course, then this course might not be for you.
- If you have absolutely no idea about programming or do not see yourself doing programming in the next six -odd months, then this class may not be for you.

Course Details

Week I

Starting With Visual Studio 2010

- Creating Console Application Project
- Project Vs. Solution
- How to Compile a Project

What Is A Method

- Argument List
- Return Type
- Breaking Down Solutions to One or More Methods

Namespace

- Alias
- Global Scope

Variables

- Base Classes – Basic
- How to Write to a Console
- How to Read from a Console

Week II

Flow Control

- Introduction to Flow Control
- Importance of Flow Control

Flow Control – Conditional Statements

- If-Else Statements
- Switch Statements

Flow Control – Iteration And Jumps

- For
- While
- Do-While
- Break
- Continue
- Go-To
- For Each

Operators – Basic

- Arithmetic Operators
- Increment / Decrement Operators
- Comparison Operators
- Logical Operators
- Bitwise Operators
- Bit Shifting Operators
- Assignment Operators

Scope Of A Variable

Constants

Data Types

- Value Types
- Reference Types

Week III

Value Types In Detail

- Signed Vs. Unsigned

- Byte, SByte
- Short, UShort
- Int, UInt
- Long, ULong
- Float
- Double
- Decimal
- Bool
- Char

Arrays

- Single Dimensional Arrays
- Introduction to the [ ] Operator
- Multiple Dimensional Arrays
- Jagged Arrays
- Array as a Reference Type

String

- String as a Reference Type
- What a String is made of – Understanding the Char Type
- Construction of Strings
- Copying One String to Another
- Using the [ ] Operator
- Conversion of String-Cases
- Searching Characters in String
- Searching Words in Sentence
- Complex String Operations
- String Builder
- Format Strings
- Immutability

Week IV

Enumerations

Preprocessor Directives

- Define
- Undef
- If, Else-If, Else, End-If

- Warning
- Error
- Region, Endregion

Compiling With Multiple Main ( ) Methods

Visual Studio 2010 Revisited – How To Debug Your Code

Structures

How To Effectively Design And Write Your Own Classes?

Where To Go Next

Labs

Lab assignments will focus on the practice and mastery of contents covered in the lectures; and introduce critical and fundamental problem-solving techniques to the students.

Dot Net Intermediate: Level 2

Nature of the Course: Theory + Practical
Total Hours per Day: 2 Hours
Course Duration: 4 Weeks

Course Summary

The DTC – Dot Net – Level 2 course is designed for students who have some prior hands-on programming experience with the Dot Net programming language at a beginning level. This course is ideal for people who have previously programmed in another programming language (e.g., Java, Obj-C, PHP, C, C++, etc.) and wish to learn Dot Net. This course is designed for high school and university students who want to do Dot Net coursework, including those who are already working as a professional VB.NET developer and want to switch to Dot Net, as well as those who have worked in the media industry since graduation or are working as a professional freelance PHP developer.

Completion Criteria

After fulfilling all of the following criteria, the student will be deemed to have finished the Module:

- Has attended 90% of all classes held.
- Has received an average grade of 80% on all assignments
- Has received an average of 60% in assessments.
- The tutor believes the student has grasped all of the concepts and is ready to go on to the next module.

Required Textbooks

- Andrew Troelsen and Phillip Japikse, “Pro C# 9 with .NET 5”, Apress.
- Ryan Turner, “The Ultimate Beginners Learn C# Programming Step by Step”, N.B.L Publishing.

Prerequisites

- Successfully complete the entrance test with a score of at least 40% (for trainees directly applying to this level).
- Successfully complete the DWIT Training – Dot Net – Level 1 course (not applicable to trainees directly applying to this level).

- Successfully complete the interview.
- Willing and eager to spend at least 10-20 hours (varying from student-to-student) per week outside of the training class to read/write codes in Dot Net (self-study and practice).

Course Details

Week I

Class In Detail

- Data Members
- Function Members
- Access Modifiers
- Data Encapsulation
- Set and Get Methods
- Passing Parameters by Value
- Passing Parameters by Reference
- Using Keywords: ref, out and params in Methods
- Named Arguments
- Optional Arguments
- Method Overloading
- Properties and Accessory
- Constructors and Destructors
- Partial Classes
- Static Class and Static Methods
- Static Constructor, Read-Only Fields

Week II

Object Oriented Programming

- Implementation Inheritance
- Interface Inheritance
- Multiple Inheritance
- The Object Class
- Polymorphism, Virtual Methods
- Abstract Class and Abstract Methods
- Sealed Class
- Exceptions
- Structures Revisited
- Using Constructors

- Inheritance
- Coding Conventions and Guidelines
- Properly Writing Comments

Week III
Advanced

- Use of Operators – Checked, Unchecked
- Use of Operators – As, Is, Type Of, Unsafe, Size Of
- Nullable Types and Operations
- Null Coalescing Operators
- Type Inference
- Anonymous Type
- Boxing and Unboxing
- Data Conversions – Implicit and Explicit
- Comparing Objects for Equality
- Operator Overloading
- User – Defined Casts
- Indexers
- Generics
- Type Safety
- Constraints
- Default
- Inheritance
- Interface
- Statics
- Structures
- Delegates
- Co-Variance
- Contra-Variance
- Delegates and Events

Week IV
Writing Windows Forms Applications

- Window Form Application Vs. Console Application
- Human Computer Interaction
- Slight Diversion: The WinMain( ) Loop
- Class Hierarchy

- Controls
    - User Interface
    - User Interaction
    - How it all Works
- Forms Class
- Standard Controls
    - Button
    - Check Box
    - Checked List Box
    - Combo Box
    - Data Grid View
    - Date Time Picker
    - Error Provider
    - Image List
    - Label
    - List Box
    - List View
    - Masked Text Box
    - Menu Strip
    - Panel
    - Picture Box
    - Progress Bar
    - Radio Button
    - Rich Text Box
    - Tab Control
    - Tab Pages
    - Text Box

Labs

Lab assignments will focus on the practice and mastery of contents covered in the lectures; and introduce critical and fundamental problem-solving techniques to the students.

Dot Net Advanced: Level 3

Nature of the Course: Theory + Practical
Total Hours per Day: 2 Hours
Course Duration: 4 Weeks

Course Summary

This course expands on the DTC – Dot Net – Level 2 foundation and offers advanced subjects to equip learners for a career as an Android software engineer.

Completion Criteria

After fulfilling all of the following criteria, the student will be deemed to have finished the Module:

- Has attended 90% of all classes held.
- Has received an average grade of 80% on all assignments
- Has received an average of 60% in assessments.
- The tutor believes the student has grasped all of the concepts and is ready to go on to the next module.

Required Textbooks

- Andrew Troelsen and Phillip Japikse, “Pro C# 9 with .NET 5”, Apress.
- Ryan Turner, “The Ultimate Beginners Learn C# Programming Step by Step”, N.B.L Publishing.

Prerequisites

- Successfully complete the entrance test with a score of at least 40% (for trainees directly applying to this level).
- Successfully complete the DWIT Training – Dot Net – Level 2 course (not applicable to trainees directly applying to this level).
- Successfully complete the interview.
- Willing and eager to spend at least 10-20 hours (varying from student-to-student) per week outside of the training class to read/write codes in Dot Net (self-study and practice).

Course Details

Week I

Data Structures

- Introduction
- Key Interfaces
- Array Class
- Lists
    - Queue
    - Stack
    - Linked List
    - Sorted List
    - Dictionaries
    - Sets
    - Bit Arrays
    - Trees
    - Graphs
    - Data Structures
    - Performance

Managing Files

- File I/O Revisited
- Serialize/Deserialize
- Moving, Copying and Deleting Files
- Collecting Drive Information
- Memory Mapped File

Week II

Working With Xml

- Standards in .NET
- XML I/O
- DOM
- XPATH

Instrumentation

- Event Logging
- Tracing
- Perfmon

- Contracts

Writing Multithreaded Applications

- Asynchronous Delegates
- Thread Class
- Thread Pools
- Tasks
- Race Conditions and Deadlock
- Lock Statement
- Wait Handle
- Mute X
- Semaphore
- Timers

Week III

Writing Network Applications Reflection And Assemblies

- DCustom Attributes
- System.Type
- Assembly Class
- Overview of Assemblies
- Constituents of Assembly
- Structure
- Manifest
- Attributes
- Private, Shared, Satellite
- Creating and Loading Assemblies
- Application Domains
- Versioning
- GAC
- Shared Assemblies
- Strong Names
- Delayed Signing

Week IV

Windows Forms

- Multiple Document Interface
- User Controls

Introduction To Asp.Net

- What is ASP.NET
- ASP.NET Life-Cycle
- Websites Vs. Web Applications
- Managing States
- Coding Models
- ASP.NET Web Forms
- ASP.NET Server Controls

Labs

Lab assignments will focus on the practice and mastery of contents covered in the lectures; and introduce critical and fundamental problem-solving techniques to the students.

Learning Outcomes

- Web Application Configuration and Deployment.
- Create a safe online application.
- Understand the ASP.NET page structure and the Microsoft.NET Framework.
- Create a web application with a wide range of controls.
- Learn how to use the features of the Dot Net Framework as well as the features of C#, access the data using inbuilt data access tools.
- Perform database operations for Windows Form and web applications.