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(Basics – 30 Hours & Advanced -30 Hours)

.NET Training

(Basics – 30 Hours & Advanced -30 Hours)

A training pack for students & beginners

Dear Sir/Madam

Sub: To organize .NET Training in your college.

This is to bring to your kind notice that **POSITIVE QUADRANT TECHNOLOGIES LLP** is an Indian entity exploring itself in various sectors like Software Development , Augmented Reality , Virtual Reality , IoT , Simulation ,Games Development ,Mobile Applications,3D Modelling Development , Practical Educational Training, Professional Training, Corporate Training, Web & IT Services.

.NET Training conceptualized by **some top industry professionals** in association with **POSITIVE QUADRANT TECHNOLOGIES LLP**. It is going to be India's first & biggest training series based on this market flag bearer of all next generation technologies.

This workshop will also provide a platform where young engineers can mould their imagination into reality and feel the excitement first-hand. With this end in view, we extend our support and technical expertise to the young engineers of your College in the form of this workshop. We seek your cooperation and look forward towards a successful execution of this workshop in your college.

We are hoping that you will find this training really interesting for the students. If you have any queries, please get back to us anytime.

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SYLLABUS

Basics – 30 Hours

1**. Philosophy of .Net (Basics)**

➢ Net Framework Development Goals

➢ The CLR's Execution Model

➢ Managed Code, Assemblies, NGen.exe

➢ NET FCL(Foundation Class Libraries)

➢ The Common Type System

➢ The Common Language Specification

➢ IDL and practical with idasm.exe

➢ JIT Compilation and Assemblies in .net

➢ A Brief Look at metadata

➢ Overview of Dot Net Technologies (WPF,ASP.NET, WCF,LINQ,EF,MVC4)

➢ C# 6.0 New Features

➢ First Program in C#

2**. C# Language Basics (Basics)**

➢ C# Program Syntax

- ❖ Class, Objects
- ❖ Variables and Fields
- ❖ Methods
- ❖ C# Program Compilation (using csc)

➢ Tokens

- ❖ Literals
- ❖ Punctuations

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- ❖ Keywords
- ❖ Identifiers
- ❖ Operators

➢ Comments

- ❖ Single Line Comment
- ❖ Multiline Comment

➢ Variables

- ❖ Stack vs Heap Memory
- ❖ Value vs Reference Types
- ❖ Assigment Operator
- ❖ Definite Assignment
- ❖ Default Values
- ❖ var—Implicitly Typed Local Variables

➢ Numeric Types

- ❖ 8 vs 16 Bit Integers
- ❖ Double vs Decimal
- ❖ Arithmetic Operators
- ❖ Bitwise Operators

➢ Boolean Type

- ❖ Equality Operators
- ❖ Comparison Operators
- ❖ Conditional Operators

➢ Characters

- ❖ Escape Sequences
- ❖ Character Conversion

➢ Strings

- ❖ String Concatenation
- ❖ String Comparison

➢ String Methods

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3. C# Control Structures (Basics)

➢ Conditional Structures

- ❖ If else
- ❖ Nested If
- ❖ Ternary Operator
- ❖ Switch

➢ Looping Constructs

- ❖ for loop
- ❖ while loop
- ❖ do-while
- ❖ foreach (using strings in place of collection)

➢ Jumping constructs

- ❖ break
- ❖ continue
- ❖ goto

4. C# Methods and Arrays (Basics)

➢ Parameter Passing

- ❖ Passing argument by value
- ❖ Passing argument by reference
- ❖ ref and out modifier
- ❖ params modifier
- ❖ optional modifier

➢ Returning from methods

➢ Array Initializations

➢ Bound Checks

➢ Multidimensional Arrays

- ❖ Rectangular Array
- ❖ Jagged Array

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- ❖ Simplified Array Initialization Expressions

5. C# Object Oriented Programming Basics (Basics)

➢ Classes

➢ Namespaces

- ❖ Using directive
- ❖ Aliasing Types and Namespaces
- ❖ extern keyword

➢ Fields

- ❖ Declaring multiple fields
- ❖ readonly modifier
- ❖ Constants

➢ Methods

- ❖ Overloading
- ❖ partial methods

➢ Constructors

- ❖ Overloading Constructors
- ❖ Implicit parameterless constructors
- ❖ Finalizers
- ❖ Static Constructor

➢ Properties

- ❖ readonly properties
- ❖ calculated properties
- ❖ automatic properties
- ❖ get and set accessibility
- ❖ Indexers

➢ The object Type

- ❖ Object Initializers
- ❖ this keyword
- ❖ boxing and unboxing
- ❖ The Object class and its members
- ❖ Object Hash Codes
- ❖ Printing an object with toString

➢ Static Members, Static Classes

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Advanced – 30 Hours

6. C# Inheritance and Polymorphism (Advanced)

➢ Inheritance

- ❖ Interfaces
- ❖ Abstract Class
- ❖ base keyword
- ❖ Virtual Function Members
- ❖ new versus override

➢ Polymorphism

➢ Casting and reference conversion

- ❖ upcasting
- ❖ downcasting
- ❖ as operator
- ❖ is operator
- ❖ static and runtime type checking

➢ Sealing Functions and Classes

➢ Access Modifiers

➢ Friend Assemblies

➢ Structs

➢ Enums

- ❖ Enum Conversions
- ❖ Flags Enum
- ❖ Enum Operators

➢ Nested Types

➢ Generics

- ❖ Necessity
- ❖ Generic Types
- ❖ Generic Methods

➢ Declaring type parameters

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7. ADVANCED C# PART1 (Advanced)

- Delegates
- Events
- Lambda Expressions
- Anonymous Methods
- Exception Handling
    - try catch
    - multiple catches
    - throwing exception
    - finally block
- Nullable Types

8. ADVANCED C# PART2 (Advanced)

- Operator Overloading
- Extension Methods
- Anonymous Types
- Dynamic Binding
- Attributes
- Caller Info Attributes

9. FRAMEWORK FUNDAMENTALS (Advanced)

- Utility Classes

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- String and Text Handling
- Dates and Times
- Dates and Time Zones
- Formatting and Parsing
- Standard Format Strings and Parsing Flags
- Other Conversion Mechanisms
- Globalization
- Working with Numbers Enums
- Tuples
- The Guid Struct

10. COLLECTIONS AND GENERICS (Advanced)

- Enumeration and Iterators
- The ICollection and IList Interfaces
- The Array Class
- Lists, Queues, Stacks, and Sets
- Dictionaries

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➢ Customisable Collections and Proxies

11. LINQ (Advanced)

➢ Fluent Syntax

➢ Query Expressions

➢ Deferred Execution

➢ Subqueries

➢ Composition Strategies

➢ Projection Strategies

➢ Interpreted Queries

➢ LINQ to SQL and Entity Framework

➢ Building Query Expressions

➢ Projecting Joining

➢ Ordering

➢ Grouping

➢ Set Operators

➢ Conversion Methods

➢ Element Operators

➢ Aggregation Methods

➢ Quantifiers