**Course Outline for**  [**C#**](http://objectdiscovery.com/training/course/programming/microsoft/csharp/oop/index.html)**.Net programming with Object-Oriented concepts**

**Course Outline**

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| **#** | **Chapters & Strategies** | **Session #** | **Topics** |
| 1 | **.NET: What You Need To Know** | * 1 | * .NET Executables and the CLR * A .NET Test bed for C# Programming * Using Visual Studio |
| 2 | **First C# Programs** | * 2 | * Hello, World * Namespaces * Variables and Expressions * Using C# as a Calculator * Input/Output in C# * .NET Framework Class Library |
| 3 | **Data Types in C#** | * 2 | * Data Types * Integer Types * Floating Point Types * Decimal Type * Characters and Strings * Boolean Type * Conversions |
| 4 | **Operators and Expressions** | * 2 | * Operator Cardinality * Arithmetic Operators * Relational Operators * Logical Operators * Assignment Operators * Expressions |
| 5 | **Control Structures** | * 2 | * If Tests * Loops * Arrays * Foreach * More about Control Flow * Switch |
| 6 | **Object-Oriented Programming** | * 3 | * Objects * Classes * Inheritance * Polymorphism * Object-Oriented Languages * Components |
| 7 | **Classes** | * 3 | * Classes as Structured Data * Methods * Constructors and Initialization * Static Fields and Methods * Constant and Readonly |
| 8 | **More about Types** | * 3 | * Overview of Types in C# * Value Types * Boxing and Unboxing * Reference Types |
| 9 | **Methods, Properties and Operators** | * 3 | * Methods * Parameter Passing * Method Overloading * Variable-Length Parameter Lists * Properties * Operator Overloading |
| 10 | **Characters and Strings** | * 4 | * Characters * Strings * String Input * String Methods * StringBuilder Class * Programming with Strings |
| 11 | **Arrays and Indexers** | * 4 | * Arrays * System.Array * Random Number Generation * Jagged Arrays * Rectangular Arrays * Arrays as Collections * Bank Case Study - Step 1 * Indexers |
| 12 | **Inheritance** | * 4 | * Single Inheritance * Access Control * Method Hiding * Initialization * Bank Case Study - Step 2 |
| 13 | **Virtual Methods and Polymorphism** | * 5 | * Virtual Methods and Dynamic Binding * Method Overriding * Fragile Base Class Problem * Polymorphism * Abstract Classes * Sealed Classes * Heterogeneous Collections * Bank Case Study - Step 3 |
| 14 | **Formatting and Conversion** | * 5 | * ToString * Format Strings * String Formatting Methods * Bank Case Study - Step 4 * Type Conversions |
| 15 | **Exceptions** | * 5 | * Exception Fundamentals * Structured Exception Handling * User-Defined Exception Classes * Inner Exceptions * Bank Case Study - Step 5 |
| 16 | **Interfaces** | * 6 | * Interface Fundamentals * Programming with Interfaces * Using Interfaces at Runtime * Bank Case Study - Step 6 * Resolving Ambiguities |
| 17 | **.NET Interfaces and Collections** | * 6 | * Collections * Bank Case Study - Step 7 * IEnumerable and IEnumerator * Copy Semantics and ICloneable * Comparing Objects * Generic Types * Type-Safe Collections * Bank Case Study - Step 8 |
| 18 | **Additional C# Features** |  | * Auto-Implemented Properties * Implicitly Typed Variables * Object Initializers * Collection Initializers * Anonymous Types * Partial Methods * Extension Methods * Lambda Expressions * Language-Integrated Query (LINQ) |