

10975AC

**Introduction to
Programming**

5 DAYS

In this 5-day course, students will learn the basics of computer programming through the use of Microsoft Visual Studio 2013 and either the Visual C# or Visual Basic programming languages. The course assumes no prior programming experience and introduces the concepts needed to progress to the intermediate courses on programming, such as 20483B: Programming in C#.

Module 1: Introduction to Core Programming Concepts

Computer Data Storage and Processing
Application Types
Application Life-Cycle
Code Compilation

Module 2: Core Programming Language Concepts

Syntax
Data Types
Variables and Constants

Module 3: Program Flow

Introduction to Structured Programming Concepts
Introduction to Branching
Using Functions
Using Decision Structures
Introducing Repetition

Module 4: Algorithms and Data Structures

Understand How to Write Pseudo Code
Algorithm Examples
Introduction to Data Structures

Module 5: Error Handling and Debugging

Introduction to Program Errors
Introduction to Structured Error Handling
Introduction to Debugging in Visual Studio

Module 6: Introduction to Object-Oriented Programming

Introduction to Complex Structures
Introduction to Structs
Introduction to Classes
Introducing Encapsulation

Module 7: More Object-Oriented Programming

Introduction to Inheritance

Introduction to Polymorphism

Introduction to the .NET Framework and the Base Class Library

Module 8: Introduction to Application Security

Authentication and Authorization

Code Permissions on Computers

Introducing Code Signing

Describe how authorization and authentication work

Describe how to apply access permissions for executing code on a computer

Explain how code signing works

Module 9: Core I/O Programming

Using Console I/O

Using File I/O

Module 10: Application Performance and Memory Management

Value Types vs Reference Types

Converting Types

The Garbage Collector