

**NOVA COLLEGE-WIDE COURSE CONTENT SUMMARY
ITP 136 - C# PROGRAMMING I (4 cr.)**

Course Description

Presents instruction in fundamentals of object-oriented programming and design using C#. Course content emphasizes program construction, algorithm development, coding, debugging, and documentation of applications within the .NET Framework. Lecture 4 hours per week.

General Course Purpose

Course Prerequisites/Corequisites

None.

Course Objectives

Upon completion of this course, the student will be able to:

- Acquire the fundamentals of object-oriented programming and design using C#
- Gain an understanding of concepts of object oriented language; encapsulation, inheritance, and polymorphism
- Learn the C# programming within the .NET framework

Major Topics to be Included

- Introduction to Computers and Programming Languages.
- C# language fundamentals.
- Classes and Objects
- Inheritance and polymorphism
- Interfaces
- Arrays and collections
- Strings and regular expressions
- Handling Exceptions

Student Learning Outcomes

Introduction to Computers and Programming Languages

- Learn the history of computers
- Understand the difference between low level and high level programming languages
- Understand difference between procedural languages and object- oriented language
- Understand the basics of computer hardware

C# Language Fundamentals

- Understand types, variables and constants
- Understand statements and operators
- Be able to work with namespaces

Classes and objects

- Understand how to define a class.

- Understand object-oriented concepts of classes
- Be able to create objects from the classes
- Understand method constructs.
- Understand how to pass parameters
- Understand the concept of data encapsulation

Inheritance and Polymorphism

- Understand object-oriented inheritance
- Be able to describe what polymorphism is and the advantages of it in a language
- Understand the concept of abstract classes
- Be able to describe boxing and unboxing

Interfaces

- Be able to describe what an interface is and why it is used
- Understand how to implement an interface

Arrays and collections

- Understand array basics
- Learn to declare and use one dimensional array
- Understand the effect of using array elements as parameter to methods
- Understand the Collection interfaces

Strings and regular expressions

- Understand C# strings
- Understand how to manipulate strings
- Be able to describe what regular expressions are and how to use them

Handling exceptions

- Understand how to throw and catch exceptions
- Be able to describe why you would want to use exceptions
- Learn how to re-throw exceptions