



Course description:

This course introduces C# programming language. Students will gain the knowledge and experience to develop visual applications using C#. In addition to the basic skills in programming, such as data input and output, conditional and repetitions statements, arrays, files. The course includes also the necessary skills to develop practical applications.

Aims of the course:

Students are expected to:

- Be aware of software development principles and be able to apply them successfully.
- Gain knowledge and understanding of different graphical user interface components includes buttons, text boxes, labels, radio buttons, etc.
- Gain knowledge and understanding of programming language principles, including data types, operators, conditional and repetition statements, methods, arrays, and files.
- Be familiar with object oriented programming fundamentals.
- Have the ability to create, design and implement complete visual C# applications to solve problems using .Net IDE.

Intended Learning Outcomes (ILOs):

Upon successful completion of this course, students are expected to:

A. Knowledge and Understanding	
A1	Concepts and Theories: <ul style="list-style-type: none"> • Know and understand software development principles, and how develop solutions to solve programming related problems. • Demonstrate an understanding of C# programming concepts includes: graphical user interfaces, visual components, properties, events, exceptions and error handling. • Demonstrate knowledge and understanding of the Concepts of Object Oriented Programming.
A2	Contemporary Trends, Problems and Research: Demonstrate awareness of the current trends and advancements in programming domains including methods and tools.
A3	Professional Responsibility: Abide by laws and regulations of software development

B. Subject-specific skills	
B1	Problem solving skills: Identify, analyze and develop C# applications to solve the programming problems.
B2	Modeling and Design: Design appropriate graphical user interfaces using C# language to solve programming problems.
B3	Application of Methods and Tools: Use .Net IDE to develop, design, implement, test, debug and deploy C# applications.

C. Critical-Thinking Skills	
C1	Analytic skills: Use analytic skills to analyze problems at hand and determine the appropriate solutions.
C2	Strategic Thinking: Use strategic thinking to propose efficient solutions for programming problems
C3	Creative thinking and innovation: Demonstrate creativity in developing and designing C# applications to solve programming problems.

D. General and Transferable Skills (other skills relevant to employability and personal development)	
D1	Communication: Express and communicate ideas in written and oral forms.
D2	Teamwork and Leadership: Show the ability to work effectively as a member/leader of a team.
D3	Organizational and Developmental Skills: Show the ability to organize ideas and allocate adequate time to achieve given tasks.
D4	Ethical and Social Responsibility: Understand that they are accountable for their actions and there must be a balance between economic growth and the welfare of the society and environment.

Course Structure:

We ek	Hours	ILOs	Topics	Teaching Procedure	Assessment methods
1	3	A1, B1	Chapters 1: Introduction to Computing and Programming <ul style="list-style-type: none"> - Introduction - Hardware and Software - How Computers Store Data - How a Program Works - Graphical User Interfaces - Objects - The Program Development Process - Getting Started with the Visual Studio Environment 	-Lecturing with active participations. -Cooperative learning. - In class activities -team learning	Quizzes, tests, homework, in class participation, in class programming
2	3	A1, B1, B2,B3	Chapters 2:Introduction to Visual C# <ul style="list-style-type: none"> - Getting Started with Forms and Controls - Creating the GUI for Your First Visual C# Application - Introduction to C# Code - Writing Code for the Hello World Application - Label Control - Making Sense of IntelliSense - PictureBox Controls - Comments, Blank Lines, and Indentation - Writing the Code to Close an Application's Form - Dealing with Syntax Error 	=	=
3,4	6	A1,A2,A3, B1,B1,B2,	Chapters 3: Processing Data	=	=

		C1,C2,C3, D1,D2,D3, D4	<ul style="list-style-type: none"> - Reading Input with TextBox Controls - A First Look at Variables - Numeric Data Type and Variables - Performing Calculations - Inputting and Outputting Numeric Values - Formatting Numbers with the ToString Method - Simple Exception Handling - Using Named Constants - Declaring Variables as Fields - Using the Math Class - More GUI Details 		
5,6	6	A1,A2,A3, B1,B1,B2, C1,C2,C3, D1,D2,D3, D4	Chapters 4: Making Decisions <ul style="list-style-type: none"> - Decision Structures and the if Statement - The if-else Statement - Nested Decision Structures - Logical Operators - bool Variables and Flags - Comparing Strings - Preventing Data Conversion Exceptions with the TryParse Method - Input Validation - Radio Buttons and CheckBoxes - The switch Statement - Introduction to List Boxes 	=	=
7-8	6	A1,A2,A3, B1,B1,B2, C1,C2,C3, D1,D2,D3, D4	Chapters 5:Loops, File, and Random Numbers <ul style="list-style-type: none"> - More About ListBoxes - The while Loop - The ++ and – Operators - The for Loop - The do-while Loop - Using Files for Data Storage - The OpenFileDialog and SaveFileDialog Controls - Random Numbers - The Load Event 	=	=
9-10	6	A1,A2,A3, B1,B1,B2, C1,C2,C3, D1,D2,D3, D4	Chapters 6: Modularizing Your Code with Methods <ul style="list-style-type: none"> - Introduction to Methods - void Methods - Passing Arguments to Methods - Passing Arguments by Reference - Value-Returning Methods 	=	=
11-12	6	A1,A2,A3, B1,B1,B2, C1,C2,C3, D1,D2,D3, D4	Chapter 7: Arrays and Lists <ul style="list-style-type: none"> - Value Types and Reference Types - Array Basics - Working with Files and Arrays - Passing Arrays as Arguments to Methods - Some Useful Array Algorithms 	=	=

			<ul style="list-style-type: none"> - Advanced Algorithms for Sorting and Searching Arrays - Two-Dimensional Arrays - Jagged Arrays - The List Collection 		
13-15	6	A1,A2,A3, B1,B1,B2, C1,C2,C3, D1,D2,D3, D4	Chapter 8: More about Processing Data <ul style="list-style-type: none"> - Introduction - String and Character Processing - Structures - Enumerated Types - The ImageList Control 	=	=

References:

A. Main Textbook:

- Tony Gaddis, "Starting Out with Visual C# 2012", 3rd edition, Prentice Hall, 2013.

B. Supplementary Textbook(s):

- Paul Deitel and Harvey Deitel, "Visual C# 2012 How To Program", 5th edition, Prentice Hall, 2013.

Assessment Methods:

Methods	Grade	Date
First Exam	20%	specified later
Second Exam	20%	specified later
Participation (Quizzes- HWs)	10%	
Final Examination	50%	specified later