

Table of Contents

Terms of Use.....	3
Disclaimer.....	3
Contact Us.....	3
Other Courses.....	3
3 rd Party Copyrights.....	3
Instructional Videos.....	4
Table of Contents.....	5
Before You Begin.....	11
Minimum Hardware and Software Requirements.....	11
Conventions Used in This Text.....	12
What You Will Learn and Do In This Course.....	13
What You Need to Know Before Starting.....	13
Software Versions.....	13
Getting Help.....	13
Course Errata.....	13
Chapter One: Introduction to Windows Programming.....	15
Lesson One: History of Windows.....	15
Lesson Two: The Evolution of Windows Programming.....	21
Lesson Three: Windows Programming Languages.....	24
Chapter Review.....	26
Activity: Install Visual C# 2010 Express.....	27
Chapter Two: Fundamentals of C#.....	31
Lesson One: Introduction to C#.....	31
Lesson Two: Visual C# 2010 Express Software.....	34
Lesson Three: Hello World.....	43

Chapter Review.....	48
Activity: Enhance Hello World.....	49
Chapter Three: Windows Programming Concepts.....	51
Lesson One: Common Windows Elements.....	51
Lesson Two: C# Syntax.....	54
Lesson Three: Event-Driven Programming.....	57
Lesson Four: Namespaces.....	61
Chapter Review.....	64
Activity: A More Personal Hello.....	65
Chapter Four: Data Types and Variables.....	67
Lesson One: Value Data Types.....	67
Lesson Two: Variables.....	71
Lesson Three: Reference Data Types.....	76
Lesson Four: Introducing Strings.....	78
Chapter Review.....	81
Activity: Experiment with Data Types.....	82
Chapter Five: Basic Flow Control.....	83
Lesson One: Logical Expressions.....	83
Lesson Two: Using the “if” Statement.....	87
Lesson Three: For() Loops.....	90
Lesson Four: While() Loops.....	93
Chapter Review.....	96
Activity: Jeepers, Beepers!.....	97
Chapter Six: User Input.....	99
Lesson One: Text Boxes.....	99

Lesson Two: List Boxes and Combo Boxes	101
Lesson Three: Radio Buttons and Check Boxes	105
Chapter Review.....	107
Activity: Telling Tall Tales	108
Chapter Seven: Math Functions in C#	109
Lesson One: Math Operators (+, -, *, /, %)	109
Lesson Two: .NET Framework Math Functions.....	112
Lesson Three: A Simple Calculator	114
Chapter Review.....	118
Activity: Divide and Multiply	119
Chapter Eight: Working With Strings	121
Lesson One: Common String Operations.....	121
Lesson Two: Formatting Strings.....	125
Lesson Three: Converting Between Strings and Numbers	128
Chapter Review.....	130
Activity: Caesar’s Cipher	131
Chapter Nine: Methods.....	133
Lesson One: Writing and Calling Methods.....	133
Lesson Two: Method Parameters and Return Values	135
Lesson Three: Calling Methods	137
Chapter Review.....	143
Activity: What’s Your Birthday?	144
Chapter Ten: Debugging and Exceptions	145
Lesson One: The Visual C# 2010 Express Debugger	145
Lesson Two: Debugging Demonstration	148
Lesson Three: C# Runtime Exceptions	152
Chapter Review.....	155
Activity: Divide By Zero	156

Chapter Eleven: Collections	157
Lesson One: Arrays.....	157
Lesson Two: Linked Lists	161
Lesson Three: Enumeration and ForEach.....	165
Chapter Review.....	168
Activity: Your To-Do List	169
Chapter Twelve: Object-Oriented Programming.....	171
Lesson One: Object-Oriented Concepts.....	171
Lesson Two: History of OOP.....	173
Lesson Three: Defining an Object	174
Chapter Review.....	177
Activity: Creating Songs	178
Chapter Thirteen: Classes in C#.....	179
Lesson One: Defining a Class	179
Lesson Two: Properties and Methods	180
Lesson Three: Public vs. Private.....	182
Lesson Four: Constructors	183
Lesson Five: Static Members.....	185
Chapter Review.....	187
Activity: Your Song Player.....	188
Chapter Fourteen: Sorting and Recursion.....	189
Lesson One: Simple Sorting	189
Lesson Two: Recursion	192
Lesson Three: Recursive Sorting	196
Chapter Review.....	201

Activity: The Number Sort..... 202

Chapter Fifteen: File Input and Output 203

 Lesson One: Using Files in a Program 203

 Lesson Two: Reading and Writing Text Files..... 206

 Lesson Three: Reading and Writing Binary Files 209

 Lesson Four: SaveFileDialog and OpenFileDialog 212

 Chapter Review..... 216

 Activity: Your Own Notepad..... 217

Chapter Sixteen: Inheritance and Polymorphism..... 219

 Lesson One: Base Classes and Derived Classes 219

 Lesson Two: Using References to Base and Derived Classes 224

 Lesson Three: Virtual Base Methods 226

 Lesson Four: The “Object” Base Class 228

 Lesson Five: Using Base Features from Derived Classes 230

 Chapter Review..... 233

 Activity: Creating the Chess Pieces 234

Chapter Seventeen: Final Project..... 235

 Lesson One: The Game of Chess..... 235

 Lesson Two: The Starter Project 238

 Activity One: Starting Your Chess Project 243

 Activity Two: Initializing the Game 243

 Activity Three: Finishing handleClick() 244

 Activity Four: Moving Pawns..... 244

 Activity Five: Moving Other Pieces, Testing for Check 245

What's Next?..... 247

Index 249