Software Development Fundamentals

Courseware 8361-1   Exam 98-361

Course Description

Software Development Fundamentals provides students with fundamental software development concepts. Students who complete this course will have reviewed all of the exam objectives and be on their way to preparing for Microsoft Technology Associate Exam #98-361. It can also serve as a stepping stone to the Microsoft Certified Technology Specialist exams.

Course Series

This *Software Development Fundamentals* courseware is one of seven courses in the Microsoft Technology Associate Series. Other courses available in the series include:

- Database Administration Fundamentals
- Windows Development Fundamentals
- Web Development Fundamentals
- Networking Fundamentals
- Security Fundamentals
- Windows Server Administration Fundamentals

The Microsoft Technology Associate Series contains exercises that students can use to learn each of the features discussed. Additional resources to practice and apply the skill sets are available from the CCI Technology Associate Microsite. Students are encouraged to register at http://mta.ccilearning.com in order access these additional activities both during and after completing the course.

Instructor Resources are available and are produced specifically to help and assist an instructor in preparing to deliver the course using the CCI materials. Contact your coordinator or administrator, or call your CCI Account Manager for information on how to access these resources.

Course Prerequisites

Prior to taking this course, students must possess the following basic computer literacy and Windows skills.

- Turn the computer and monitor on
- Recognize input devices (keyboard, printer, mouse)
- Perform a warm and cold boot
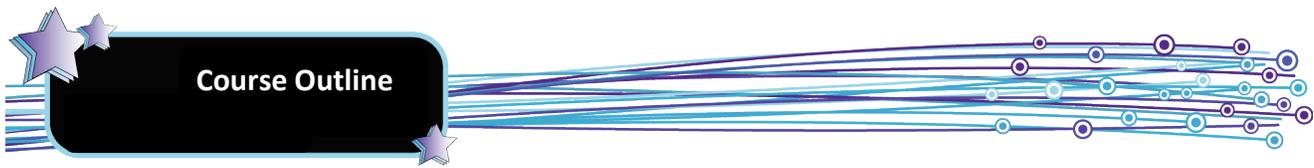
System Requirements

Supported Architecture
- x86
- x64 (WOW)

Supported Operating Systems
- Microsoft® Windows® XP (x86) Service Pack 3
- Microsoft® Windows® Vista (x86 & x64) with Service Pack 2
- Microsoft® Windows® Server 2003 (x86 & x64) Service Pack 2
- Microsoft® Windows® Server 2003 R2 (x86 & x64)
- Microsoft® Windows® Server 2008 (x86 & x64) with Service Pack 2
- Microsoft® Windows® Server 2008 R2 (x64)
- Microsoft® Windows® 7

Software
- Visual Studio 2008 Express, including:
- Visual Basic 2008 Express Edition
- Visual C# 2008 Express Edition
- Visual C++ 2008 Express Edition
- Visual Web Developer 2008 Express Edition

Microsoft Office 2007, specifically the following applications
- Microsoft Office Access 2007
- Microsoft Office Excel 2007
- Microsoft Office Word 2007

Classroom Setup

Computer Setup:
- The student will find that a larger monitor (17" and up), a regular keyboard, and a mouse will help in the creation of exercises in this book.
- Each computer should have all of the software installed (see above for list of specific software).
- Each computer needs to have a folder created to store both the original student files and new files created by the student during the exercises in this book.
- All of the student files must be copied into the newly created folder in the previous step.

Course Objectives

After completing this course, you will be able to:
- Explain how computers store programs and data in memory.
- Demonstrate computer decision structures, including flowcharts and pseudo-code.
- Identify and explain the best ways to handle repetition.
- Explain the differences between imperative and functional programming.
- Perform basic object oriented programming.
- Explain and use different types of objects.
- Explain class fundamentals, class properties methods and events.
- Discuss abstraction and inheritance.
- Explain polymorphism.
- Explain encapsulation.
- Understand the lifecycle requirements for software development.
- Recognize the set of actions or decisions needed for a project.
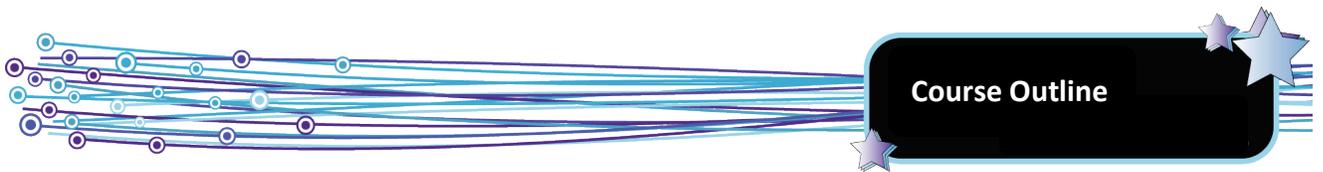
⌁ Understand the purpose of setting up a software development lifecycle.

⌁ Identify the different methodologies used in software development.

⌁ Recognize the importance of testing the software.

⌁ Create a software requirements specification list.

⌁ Understand how algorithms work.

⌁ Understand how to structure your data using array, stacks, queues or linked lists.

⌁ Define and describe basic elements of a Web page.

⌁ Write simple HTML code to develop a Web page.

⌁ Use Cascading Style Sheets (CSS) to format code.

⌁ Create a new form using Visual Basic.

⌁ Create a button on your form.

⌁ Add a Picturebox object to your form.

⌁ Work with inheritance to avoid having to re-create form features every time you use them.

⌁ Adhere to good user-interface design practices.

⌁ Explain the differences between flat-file and relational databases.

⌁ Use Microsoft Access to create SQL code for querying information contained in a database.

⌁ Create stored procedures to return data from a database query.

⌁ Use a variety of methods to connect to data.

⌁ Query a list of numbers using an in-memory object.