

ITT Technical Institute
CS410
Enterprise Applications with .NET
Onsite Course

SYLLABUS

Credit hours: 4

Contact/Instructional hours: 50 (30 Theory Hours, 20 Lab Hours)

Prerequisite(s) and/or Corequisite(s):

Prerequisites: CS330 Database Design and Implementation or equivalent, CS331 .NET Framework Programming or equivalent

Course Description:

This course covers building multi-tier enterprise applications using the .NET Framework. The focus will be on writing scalable enterprise applications using .NET technologies. Topics related to network programming, transactional consistency, and Component Object Model (COM) interoperability will be covered.

Syllabus: Enterprise Applications with .NET

Instructor:	_____
Office hours:	_____
Class hours:	_____

Major Instructional Areas

1. Application architectures
2. Object activation
3. Serviced components
4. Synchronization
5. Interoperability
6. Network communication
7. Data access components
8. Distributed transactions
9. State management
10. Queued components
11. Loosely coupled events
12. Security
13. Deployment

Course Objectives

1. Identify the most appropriate architecture based on business and technical requirements.
2. Manage object activation.
3. Create serviced components.
4. Manage synchronization.
5. Implement interoperability between various clients and components.
6. Implement components that communicate on a network.
7. Implement data access components.
8. Write code to handle distributed transactions.
9. Manage state in a distributed application.
10. Create components that execute asynchronously.
11. Implement security for a distributed application.
12. Deploy an enterprise solution.

Course Outline

Note: All graded activities, except the project and exams, are listed below in the pattern of <Unit Number>.<Assignment Number>. For example, Labs: 2.1 refers to the first lab activity in Unit 2.

Unit	Activities
1— .NET Enterprise Services Introduction	<ul style="list-style-type: none"> • Content Covered: <i>Enterprise Services with the .NET Framework:</i> <ul style="list-style-type: none"> ○ Chapter 1, “Introducing .NET Enterprise Services” • Assignments: 1.1 • Labs: 1.1 • Project Part 1
2— Object Activation and Contexts	<ul style="list-style-type: none"> • Read <i>Enterprise Services with the .NET Framework:</i> <ul style="list-style-type: none"> ○ Chapter 2, “Object Activation and Contexts” • Assignments: 2.1 • Labs: 2.1 • Project Part 2
3— Concurrency	<ul style="list-style-type: none"> • Read <i>Enterprise Services with the .NET Framework:</i> <ul style="list-style-type: none"> ○ Chapter 3, “Concurrency” • Assignments: 3.1 • Labs: 3.1 • Project Part 3
4— Interoperability	<ul style="list-style-type: none"> • Read <i>Enterprise Services with the .NET Framework:</i> <ul style="list-style-type: none"> ○ Chapter 4, “COM Interop” • Assignments: 4.1 • Labs: 4.1 • Project Part 4 • Quizzes: 4.1
5— Networking and Data Components	<ul style="list-style-type: none"> • Read <i>Enterprise Services with the .NET Framework:</i> <ul style="list-style-type: none"> ○ Chapter 5, “Networking” ○ Chapter 6, “Data Access” • Assignments: 5.1 • Labs: 5.1 • Project Part 5
6— Transaction Services	<ul style="list-style-type: none"> • Read <i>Enterprise Services with the .NET Framework:</i> <ul style="list-style-type: none"> ○ Chapter 7, “Transaction Services” • Assignments: 6.1 • Labs: 6.1 • Project Part 6 • Exam I
7— CRM and State Management	<ul style="list-style-type: none"> • Read <i>Enterprise Services with the .NET Framework:</i> <ul style="list-style-type: none"> ○ Chapter 8, “Compensating Resource Management” ○ Chapter 9, “State Management” • Assignments: 7.1 • Labs: 7.1 • Project Part 7
8— Asynchronous and Bi-Directional Components	<ul style="list-style-type: none"> • Read <i>Enterprise Services with the .NET Framework:</i> <ul style="list-style-type: none"> ○ Chapter 10, “Queued Components” ○ Chapter 11, “Loosely Coupled Events” • Assignments: 8.1 • Labs: 8.1 • Project Part 8 • Quizzes: 8.1

Unit	Activities
9— Security	<ul style="list-style-type: none"> • Read <i>Enterprise Services with the .NET Framework</i>: <ul style="list-style-type: none"> ○ Chapter 12, “Security” • Assignments: 9.1 • Labs: 9.1 • Project Part 9
10— Deployment	<ul style="list-style-type: none"> • Read <i>Enterprise Services with the .NET Framework</i>: <ul style="list-style-type: none"> ○ Chapter 13, “Deployment and Configuration” ○ Chapter 15, “Case Study” • Assignments: 10.1 • Labs: 10.1 • Project Part 10
11— Course Review and Exam	<ul style="list-style-type: none"> • Exam II

Instructional Methods

In this course, you will begin to think about distributed enterprise applications instead of monolithic Windows applications and simple websites. The course will cover concepts and techniques related to building distributed enterprise applications using the classes in the .NET Enterprise Services library.

This course requires solid Visual Basic and C# programming and object-oriented design skills. During lab time, you will write code that uses the .NET Enterprise Services classes. You are encouraged to use the ITT Technical Institute Virtual Library and the MSDN website if you need a reminder of how to write code to perform a specific task.

Assignments will provide you with an opportunity to explain concepts and work on your writing skills. In addition, two quizzes and two exams will check your understanding of the material presented throughout the course.

Many enterprise applications involve teams of programmers. The course project will allow you to work in a team to design and build a distributed business application using the technologies covered in the course.

Instructional Materials and References

Student Textbook Package

Nagel, Christian. *Enterprise Services with the .NET Framework: Developing Distributed Business Solutions with .NET Enterprise Services*. Upper Saddle River, NJ: Addison-Wesley Pearson Education, Inc., 2005.

Other Required Resources

In addition to the student textbook package, the following is also required in this course:

- Internet access

Equipment and Tools

- Visual Studio 2010 (on virtual machine)
- Virtual machine with IIS (on virtual machine)
- SQL Server 2008 (on virtual machine)

References

ITT Tech Virtual Library

Log on to the ITT Tech Virtual Library at <http://library.itt-tech.edu/> to access online books, journals, and other reference resources selected to support ITT Tech curricula.

Books

You may click “Books” from the Main Menu or use the “Library Catalog” function on the home page to find the following books.

- ITT Tech Virtual Library> Main Menu> Books> Books24x7
 - Campbell, Sean, Scott Swigart, Bob Carver, et al. *101 Microsoft Visual Basic .NET Applications*. Redmond, WA: Microsoft Press, 2003.
 - Fanstill, Pamela, Brian Reisman, and Mitch Ruebush. *MCAD/MCSD: Visual Basic .NET XML Web Services and Server Components Study Guide (70-310)*. Alameda, CA: Sybex, 2003.
 - Johnson, Bruce, Brian C. Lanham, and Shawn Wildermuth. *MCPD Self-Paced Training Kit (Exam 70-549): Designing and Developing Enterprise Applications Using the Microsoft .NET Framework*. Redmond, WA: Microsoft Press, 2007.
 - Johnson, Glenn. *Programming ADO.NET 2.0 Applications: Advanced Topics*. Redmond, WA: Microsoft Press, 2006.
 - Jones, Anthony, Jim Ohlund, and Lance Olson. *Network Programming for the Microsoft .NET Framework*. Redmond, WA: Microsoft Press, 2004.
 - Kircher, Michael, and Uwe Zdun. *Remoting Patterns: Foundations of Enterprise, Internet and Realtime Distributed Object Middleware*. West Sussex, England: John Wiley & Sons, Ltd., 2005.
 - Lhotka, Rockford. *Expert C# 2005 Business Object*. 2nd ed. New York: Apress, 2006.
 - Lhotka, Rockford. *Expert VB 2005 Business Object*. 2nd ed. New York: Apress, 2006.
 - McClure, Wallace B., et al. *Professional ADO.NET 2: Programming with SQL Server 2005, Oracle, and MySQL*. Indianapolis: Wiley Publishing, Inc., 2006.
 - McLean, Scott, James Naftel, and Kim Williams. *Microsoft .NET Remoting*. Redmond, WA: Microsoft Press, 2003.
 - Meier, J. D., Srinath Vasireddy, Ashish Babbar, and Alex Mackman. *Improving .NET Application Performance and Scalability: Patterns & Practices*. Redmond, WA: Microsoft Press, 2004.
 - Microsoft Corporation. *MCAD/MCSD Self-Paced Training Kit: Developing XML Web Services and Server Components with Microsoft Visual Basic .NET and Microsoft Visual C# .NET (Exams 70-310 and 70-320)*. Redmond, WA: Microsoft Press, 2003.
 - Morgan, Sarah, Bill Ryan, Shannon Horn, and Mark Blomsma. *MCTS Self-Paced Training Kit (Exam 70-529): Microsoft .NET Framework 2.0 Distributed Application Development*. Redmond, WA: Microsoft Press, 2007.
 - Nagel, Christian, Bill Evjen, Jay Glynn, Morgan Skinner, and Karli Watson. *Professional C# 2005 with .NET 3.0*. Indianapolis: Wiley Publishing, Inc. 2007.
 - Rammer, Ingo, and Mario Szpuszta. *Advanced .NET Remoting*. 2nd ed. New York: Apress, 2005.
 - Redkar, Arohi, et al. *Pro MSMQ: Microsoft Message Queue Programming*. New York: Apress, 2004.
 - Redlar, Rickard, and Joachim Rossberg. *Pro Scalable .NET 2.0 Application Designs*. New York: Apress, 2006.
 - Robinson, Simon, et al. *Professional C#*. 3rd ed. Indianapolis: Wiley Publishing, Inc., 2004.
 - Templeman, Julian, and John Paul Mueller. *COM Programming and Microsoft .NET*. Redmond, Washington: Citation, 2003.
 - Troelsen, Andrew. *COM and .NET Interoperability*. New York: Apress, 2003.

- Troelsen, Andrew. *Pro VB 2005 and the .NET 2.0 Platform*. 2nd ed. New York: Apress, 2006.

Periodicals

You may click “Periodicals” from the Main Menu or use the “E-Journal Lookup” function on the home page to find the following periodicals.

- Computer Weekly
- Intelligent Enterprise
- Network Computing
- Network World

School of Information Technology > Recommended Links

- Application Development Trends
- C# Programming
- MSDN Magazine
- .NET Framework Home

Other References

The following resource may be found **outside** of the ITT Tech Virtual Library.

Websites

- Microsoft Developer Network (MSDN)
<http://msdn.microsoft.com> (accessed 6/10/12)
This Microsoft portal links to information and resources for language and environment developers.

All links to Web references outside of the ITT Tech Virtual Library are always subject to change without prior notice.

Course Evaluation and Grading

Evaluation Criteria Table

The final grades will be based on the following categories:

CATEGORY	WEIGHT
Assignments	15%
Labs	20%
Exam I	20%
Exam II	20%
Quizzes	10%
Project	15%
Total	100%

Note: Students are responsible for abiding by the Plagiarism Policy.

Grade Conversion Table

The final grades will be calculated from the percentages earned in the course, as follows:

A	90–100%	4.0
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B+	85–89%	3.5
B	80–84%	3.0
C+	75–79%	2.5
C	70–74%	2.0
D+	65–69%	1.5
D	60–64%	1.0
F	<60%	0.0

(End of Syllabus)