

ITT Technical Institute
CS400
Web Services and Applications
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, CS333 Enterprise Applications with Java or equivalent

Course Description:

This course covers advanced Web application and Web service programming techniques by applying and referencing various platforms and tools such as ASP.NET applications, ASP.NET Web service, Extensible Markup Language (XML), and Java Web services.

Syllabus: Web Services and Applications

Instructor:	_____
Office hours:	_____
Class hours:	_____

Major Instructional Areas

1. XML technologies
2. Web services technologies
3. Second-generation (WS-*) Web services technologies
4. Serialization and encoding
5. Web services application integration
6. Application integration mechanics
7. Service-oriented architectures
8. Windows Communication Foundation (WCF)
9. Best practices for Web services development
10. Web service security
11. Web service hosting

Course Objectives

1. Use XML technologies to meet application requirements.
2. Use basic Web services technologies to meet application requirements.
3. Implement second-generation Web services.
4. Implement serialization and encoding to meet data exchange requirements.
5. Integrate Web services into applications.
6. Select appropriate channels and bindings for application integration.
7. Describe mechanisms for securing Web services.
8. Implement Web services based on various service-oriented architectures.
9. Implement measures for diagnosing Web service operation and handling exceptions.
10. Choose the appropriate hosting environment for a Web service.

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— Service Technologies	<ul style="list-style-type: none"> • Content Covered: <ul style="list-style-type: none"> <i>Essential Windows Communication Foundation for .NET Framework 3.5</i> <ul style="list-style-type: none"> ○ Chapter 1, “Basics” • Assignments: 1.1 • Labs: 1.1 • Project Part 1
2— Contracts	<ul style="list-style-type: none"> • Read from <i>Essential Windows Communication Foundation for .NET Framework 3.5</i>: <ul style="list-style-type: none"> ○ Chapter 2, “Contracts” • Assignments: 2.1 • Labs: 2.1 • Project Part 2

Unit	Activities
3— Channels	<ul style="list-style-type: none"> • Read from <i>Essential Windows Communication Foundation for .NET Framework 3.5</i>: <ul style="list-style-type: none"> ○ Chapter 3, “Channels” • Assignments: 3.1 • Labs: 3.1 • Project Part 3
4— Bindings	<ul style="list-style-type: none"> • Read from <i>Essential Windows Communication Foundation for .NET Framework 3.5</i>: <ul style="list-style-type: none"> ○ Chapter 4, “Bindings” • Assignments: 4.1 • Labs: 4.1 • Project Part 4 • Quizzes: 4.1
5— Behaviors	<ul style="list-style-type: none"> • Read from <i>Essential Windows Communication Foundation for .NET Framework 3.5</i>: <ul style="list-style-type: none"> ○ Chapter 5, “Behaviors” • Assignments: 5.1 • Labs: 5.1 • Project Part 5
6— Hosting	<ul style="list-style-type: none"> • Read from <i>Essential Windows Communication Foundation for .NET Framework 3.5</i>: <ul style="list-style-type: none"> ○ Chapter 7, “Hosting” • Assignments: 6.1 • Labs: 6.1 • Project Part 6 • Exam I
7— Serialization and Encoding	<ul style="list-style-type: none"> • Read from <i>Essential Windows Communication Foundation for .NET Framework 3.5</i>: <ul style="list-style-type: none"> ○ Chapter 6, “Serialization and Encoding” • Assignments: 7.1 • Labs: 7.1 • Project Part 7
8— Security	<ul style="list-style-type: none"> • Read from <i>Essential Windows Communication Foundation for .NET Framework 3.5</i>: <ul style="list-style-type: none"> ○ Chapter 8, “Security” • Assignments: 8.1 • Labs: 8.1 • Project Part 8 • Quizzes: 8.1
9— Diagnostics and Exception Handling	<ul style="list-style-type: none"> • Read from <i>Essential Windows Communication Foundation for .NET Framework 3.5</i>: <ul style="list-style-type: none"> ○ Chapter 9, “Diagnostics” ○ Chapter 10, “Exception Handling” • Assignments: 9.1 • Labs: 9.1 • Project Part 9
10— Building Services for the Web	<ul style="list-style-type: none"> • Read from <i>Essential Windows Communication Foundation for .NET Framework 3.5</i>: <ul style="list-style-type: none"> ○ Chapter 13, “Programmable Web” • Assignments: 10.1 • Labs: 10.1 • Project Part 10

Unit	Activities
11— Course Review and Exam II	<ul style="list-style-type: none"> • Course Review • Exam II

Instructional Methods

In this course, you will extend applications through the use of XML and Web services technologies. You will examine how to create Web services and applications that access them. You will select appropriate integration technologies and determine requirements for implementing hosting and securing Web services.

This course requires an understanding of Visual Basic, C#, and XML. During lab time, you will both design Web services and write code relating to Web service and client integration. You are encouraged to use the ITT Technical Institute Virtual Library and the MSDN website as references for coding requirements and project ideas.

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.

The course project will give you an opportunity to work as part of a project team to address integration concepts and develop solution requirements.

Instructional Materials and References

Student Textbook Package

- Resnick, Steve, Richard Crane, and Chris Bowen. *Essential Windows Communication Foundation for .NET Framework 3.5*. Upper Saddle River, NJ: Pearson Education Inc., 2008.

Other Required Resources

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

- Internet access

Equipment and Tools

- Virtual machine running:
 - Visual Studio 2010 Professional
 - SQL Server 2008 Standard
 - IIS

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” or use the “Search” function on the home page to find the following books.

- Ebrary

- Cheng, Steven. *Microsoft Windows Communication Foundation 4.0 Cookbook for Developing SOA Applications*. Birmingham, UK: Packt Publishing, 2010.
- Cibraro, Pablo, Kurt Claeys, Fabio Cozzolino, and Johann Grabner. *Professional WCF 4: Windows Communication Foundation with .NET 4*. Indianapolis, IN: Wiley Publishing, Inc., 2010.

Periodicals

You may click “Periodicals” or use the “Search” function on the home page to find the following periodicals.

- ProQuest
 - Business Communications Review
 - Computer Weekly
 - Enterprise Networks & Servers
 - Intelligent Enterprise
 - Network Computing

School of Information Technology

- Recommended Links
 - Application Development Trends
 - MSDN Magazine

Other References

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

Websites

- Microsoft Developer Network (MSDN)
<http://msdn.microsoft.com> (accessed 6/29/12)
This portal page provides links to training, downloads, and support for Microsoft development tools and languages.

- SOA Specifications
<http://www.soaspecs.com> (accessed 6/29/12)

A portal site for access to WS-* specifications, first-generation Web Services specifications, and core XML specifications; also supports the Prentice Hall Service-Oriented Computing Series from Thomas Erl.

- SOA Principles
<http://www.serviceorientation.org> (accessed 6/29/12)

The purpose of this site is to supply introductory content about service-orientation for online reference purposes.

- Microsoft UDDI Services Documentation
<http://msdn.microsoft.com/en-us/biztalk/dd789428.aspx> (accessed 6/29/12)

This website provides links to documentation and other information about UDDI services. This includes links to code samples for working with UDDI.

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%
Quizzes	10%
Project	15%
Exam I	20%
Exam II	20%
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
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)