

# Introduction to Web Services & SOA

CDT727

This course provides an overview of Service Oriented Architecture and Web Services, including an explanation of what SOA is and the business justification for moving to a service-oriented architecture. The topics covered include the basic technologies required to implement SOA, including XML, web services, and protocols. Web services and the technologies that support them are covered in greater depth, to provide an understanding of what tools, skills, and decisions are required to implement SOA with web services.

## Audience

- This course is designed for managers, architects, designers, developers, or any other IT professionals who need a general introduction to the terms and concepts used in SOA and Web Services.

## Prerequisites

- There are no prerequisites for this course.

## Course Length

- Two Days

## Learning Objectives

- Business Justification for SOA
- SOA Design Principles
- Services
- Creating and consuming Web Services
- Protocols and XML
- Tools
- Service Oriented Modeling and Analysis
- Enterprise Integration

## Teaching Methods

- Most of this course is lecture only. If RAD 6.0 or higher is installed on student workstations, then students will be able to create and consume web service3s, otherwise instructor will demonstrate.

## Course Outline

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<p><b>Module 1 Web Services</b></p> <ul style="list-style-type: none"><li>• Web Basics<ul style="list-style-type: none"><li>○ HTML</li><li>○ Scripting</li><li>○ Server side code</li><li>○ Distributed applications</li></ul></li><li>• Components<ul style="list-style-type: none"><li>○ Definition</li><li>○ Advantages</li></ul></li><li>• Web Services<ul style="list-style-type: none"><li>○ Definition</li><li>○ Advantages</li><li>○ Commercial</li><li>○ User-written</li><li>○ Interoperation</li></ul></li><li>• Exercises</li><li>• Review</li></ul> <p><b>Module 2 Supporting Technologies</b></p> <ul style="list-style-type: none"><li>• Transport protocols<ul style="list-style-type: none"><li>○ XML</li><li>○ SOAP</li><li>○ HTTP</li></ul></li><li>• Web Service protocols<ul style="list-style-type: none"><li>○ WSDL</li><li>○ UDDI</li></ul></li><li>• Web Standards</li><li>• Exercises</li><li>• Review</li></ul> <p><b>Module 3 Creating a Web Service</b></p> <ul style="list-style-type: none"><li>• Architecture Options<ul style="list-style-type: none"><li>○ J2EE</li><li>○ .NET</li></ul></li><li>• IDE Options<ul style="list-style-type: none"><li>○ Java</li><li>○ Microsoft</li></ul></li><li>• Demonstration<ul style="list-style-type: none"><li>○ Creating a Service</li><li>○ Consuming a Service</li></ul></li><li>• Exercises (hands-on if available)</li><li>• Review</li></ul>	<p><b>Module 4 Service Oriented Architecture</b></p> <ul style="list-style-type: none"><li>• Definition</li><li>• Rationale and Benefits</li><li>• Concepts and Terms<ul style="list-style-type: none"><li>○ BPEL</li><li>○ Service Composition</li><li>○ Process Choreography</li><li>○ B2B Integratoin</li><li>○ Portals</li><li>○ Enterprise Service Bus (ESB)</li></ul></li><li>• Exercises</li><li>• Review</li></ul> <p><b>Module 5 SOA Analysis and Design</b></p> <ul style="list-style-type: none"><li>• Analysis<ul style="list-style-type: none"><li>○ Top Down</li><li>○ Bottom-up</li><li>○ Meet in the Middle</li></ul></li><li>• Design<ul style="list-style-type: none"><li>○ Patterns</li><li>○ Service Registry</li><li>○ Repository</li><li>○ ESB</li><li>○ ESB Gateway</li><li>○ The User Interface</li><li>○ Portals</li><li>○ Orchestration and Choreography</li><li>○ Managing Transactions</li></ul></li><li>• Architecture<ul style="list-style-type: none"><li>○ Locating Services</li><li>○ Logical Components</li><li>○ Loading Data</li><li>○ Locating Services</li></ul></li><li>• Exercises</li><li>• Review</li></ul> <p><b>Module 6 Conclusion</b></p> <ul style="list-style-type: none"><li>• Next Steps<ul style="list-style-type: none"><li>○ Recommendations</li><li>○ Implementation</li><li>○ Incremental Steps</li></ul></li><li>• Exercises</li><li>• Summary</li></ul>
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