



## Oracle SOA 11g Course Content

**Silicon CareerJet  
Technologies**

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*Silicon CareerJet Technologies has always been a pioneer in terms of providing best quality online/classroom trainings. We do have Product-Certified experts from the Industry, definitely wanting to assist you in your quest for a better career. Here are the course contents of Oracle SOA 11g*

**Duration:** 30 Days

**What will be your learning at the end of this course?**

Oracle Fusion Middleware 11g is the best-in-breed application infrastructures that is available in the Industry today. It helps enterprises to build and run agile, intelligent business applications and help them in maximizing their IT efficiency.

As a part of this course, you will learn the concept of Service Oriented Architecture and see how Oracle SOA Suite 11g, paves a way for building better integration solutions that cater around the SOA design principles.

You will also learn how to configure Service Components like BPEL, Mediator, Business Rules, BAM etc.,

**Audience:**



- ✚ Application Developers, Developers, SOA Architects










**Prerequisites for this course:**

- ✚ Good knowledge on XML technologies like XML, XSD, XPATH, XSLT
- ✚ A basic understanding on the concept of Enterprise Service Bus

**Course Objectives:**

- ✚ Understand the concept of Service Oriented Architectures
- ✚ Significance of SOA in the space of Enterprise Application Integration
- ✚ Enterprise Service Bus
- ✚ Understand XML, XPath, XSLT, XSD, WSDL, Web Services
- ✚ Installing Oracle SOA Suite 11g
- ✚ Configuring a Weblogic Domain
- ✚ Work with BPEL Process Manager Activities
- ✚ Hands-on Event Delivery Network
- ✚ Work with Business Activity Monitoring
- ✚ Work with Oracle Business Rules
- ✚ Creating and configuring JCA Adapters
- ✚ Domain Value Mappings
- ✚ Monitoring the Services via Enterprise Manager Console

TOPIC	CONTENT TO BE COVERED
INTEGRATION	An introduction to Enterprise Application Integration
	Why is there a need for integrating applications?
	What are the Traditional Integration Styles?
	Integrations - Classification
	Process-Based Integrations Vs. Bulk Data-Based Integrations
 Understanding Enterprise Application Integration with detailed Use Cases from the Industry	
SERVICE ORIENTED ARCHITECTURE	An introduction to Service Oriented Architecture
	Significance of Service Oriented Architecture in the Industry
	What are Services?
	Why is the Orientation towards Services?
	What are the Principles that drive the Service Oriented Architectures?
	What is Service Portfolio Matrix?
	What is Service Granularity?
	Business Wins with Service Oriented Architectures
	The reusability aspects of a Service Oriented Integration Solutions
 Understanding the Service Oriented Architecture and its design principles with detailed Use Cases from the Industry	
ENTERPRISE SERVICE BUS (ESB)	An introduction to Enterprise Service Bus
	Significance of Enterprise Service Bus
	What is Service Virtualization and how can it be accomplished using an ESB?
	How will an ESB help enterprises to build loosely-coupled IT infrastructures?
	Routing and Transformation in an Enterprise Service Bus
	Tight Coupling Vs. Loose Coupling
	Location Transparency in an ESB

 Understanding the concept of ESB and its offerings with detailed Use Cases from the Industry	
XML TECHNOLOGIES	An introduction to XML
	Significance of XML in Application Integration
	An introduction to XSD
	Defining XSDs
	An introduction to XPATH
	Defining XPATH Expressions
	An introduction to XSLT
	A look into various constructs in XSLT
	An introduction to WSDL
	A look into various elements of a WSDL
	An introduction to SOAP
	A look into various elements of SOAP
	Re-visiting the XML technologies
SOA 11G PRODUCT STACK	An introduction to Oracle Fusion Middleware 11g
	An introduction to Oracle SOA Suite 11g, 10g vs. 11g Differences
	Understanding the Oracle SOA Product Stack
	A look into Oracle SOA product installation pre-requisites
	Downloading the Oracle SOA Software
ORACLE SOA SUITE 11g PRODUCT INSTALLATION	
 Installing the Oracle XE 10g Database	
 Creating SOA Repositories on Database using RCU	
 Installing the Oracle Weblogic Server	
 Installing the Oracle SOA Suite 11g Product	
 Creating and configuring a Weblogic Domain with Oracle SOA Product	
 Starting and Stopping the Oracle Weblogic Admin and SOA Managed Servers	
 Installing Oracle JDeveloper 11g	
 Plugging the SOA Design Time into Oracle JDeveloper 11g	
SERVICE COMPONENT ARCHITECTURE - SCA	A look into Service Component Architecture - SCA
	What is SCDL?
	Significance of Service Component Architecture
	Layers in a SCA infrastructure

	What is an Exposed Service Layer?
	What is a Component Layer?
	What is an External Reference Layer?
✚ Understanding SCA with detailed Use Cases from the Industry	
<b>BPEL4WS</b>	An introduction to BPEL4WS
	Why is BPEL used for?
	What are Business Processes?
	What is meant by Business Process Orchestration?
	BPEL – is it for Process Integrations or Bulk – Data Integrations?
	Differences between BPEL 1.1 & 2.0 specs
	Design Discussions on BPEL
✚ Understanding the concept of BPEL with detailed Use Cases from the Industry	
<b>MESSAGE EXCHANGE PATTERNS (MEPs)</b>	What are Message Exchange Patterns?
	Synchronous Request – Response MEP
	Asynchronous Request – Delayed – Response MEP
	One Way or Fire – And – Forget MEP
	Design discussions on when to use the MEPs
✚ Understanding the MEPs with detailed Use Cases from the Industry	
<b>ORACLE BPEL PROCESS MANAGER</b>	An introduction to Oracle BPEL Process Manager
	What are Activities?
	Introduction to BPEL Activities
	How different is Oracle BPEL Process Manager from BPEL4WS?
	Re-visiting the concept of SCA & Composite
<b>Oracle BPEL – ASSIGN &amp; TRANSFORM ACTIVITIES</b>	What is an Assign Activity?
	Significance of Assign Activity in manipulating XML nodes
	What is a Transforming Activity?
	Significance of Transform Activity in manipulating XML nodes
	Understanding the parts of a Transform Activity

<ul style="list-style-type: none"> <li>Building the first Composite with a Synchronous BPEL Process Service Component, containing an Assign Activity</li> </ul>	
<ul style="list-style-type: none"> <li>Building a Composite with a Synchronous BPEL Process Service Component, containing a Transform Activity</li> </ul>	
<ul style="list-style-type: none"> <li>Building a Composite with a Synchronous BPEL Process Service Component, containing a Transform Activity, demonstrating For-Each Construct</li> </ul>	
<ul style="list-style-type: none"> <li>Building a composite with a Synchronous BPEL Process Service Component, containing a Transform Activity, demonstrating Choose-When-Otherwise Construct</li> </ul>	
<ul style="list-style-type: none"> <li>Building a composite with a Synchronous BPEL Process Service Component, containing a Transform Activity, demonstrating IF Construct</li> </ul>	
<b>ORACLE BPEL - SWITCH, RECEIVE, REPLY &amp; WHILE ACTIVITIES</b>	What is meant by Conditional Execution?
	What is Switch Activity and how does it help, perform Conditional Execution?
	What are Iterations?
	What is while Activity and how does it help, perform Iterations?
	What is Receive Activity in BPEL?
	What is the Significance of Receive Activity in BPEL?
	What is Reply Activity in BPEL?
	What is the Significance of Reply Activity in BPEL
<ul style="list-style-type: none"> <li>Building a Composite with a Synchronous BPEL Process Service Component, containing a Receive, Reply &amp; While Activity</li> </ul>	
<ul style="list-style-type: none"> <li>Building a Composite with a Synchronous BPEL Process Service Component, containing a Receive, Reply &amp; Switch Activity</li> </ul>	
<b>ORACLE BPEL - ADVANCED CONCEPTS INVOKE, SCOPE, SEQUENCE Activities</b>	What is Scope Activity and how does it help logically group Business Logic in BPEL?
	What is Sequence Activity and how does it help logically group Business Logic in BPEL?
	What is Invoke Activity and How can it be used to Invoke external Web Services from the Composite?
<ul style="list-style-type: none"> <li>Building a Composite with a Synchronous BPEL Process Service Component to invoke</li> </ul>	

both of the above created Composites using an Invoke Activity( Synchronous Invoking Synchronous) – Synchronous Message Exchange Pattern Demo – The Process Orchestration would be logically grouped using Scope & Sequence Activities	
<b>ORACLE BPEL – ADVANCED CONCEPTS WAIT ACTIVITY</b>	What is Wait Activity?
	Why is there a need to interrupt the Business Process Executions?
	How can a Business Process be configured for halting the process for a Stipulated Time Intervals?
	How are Process Halts configured in BPEL?
	Parts of a Wait Activity
<ul style="list-style-type: none"> <li>Building a Composite with a Asynchronous – with – Delayed – Response BPEL Process Service Component, containing a Receive, Wait &amp; Invoke Activity</li> <li>Building a Composite with a Asynchronous – with – Delayed – Response BPEL Process Service Component, to invoke the above created Asynchronous Composite ( Asynchronous Invoking Asynchronous Demo)</li> <li>Understanding the differences between the Synchronous BPEL Process &amp; Asynchronous BPEL Process WSDL files</li> <li>Understanding the differences between the Synchronous BPEL Process &amp; Asynchronous BPEL Process .bpel files</li> <li>Understanding the differences between the Synchronous &amp; Asynchronous BPEL Process Templates</li> </ul>	
<b>ORACLE BPEL – ADVANCED CONCEPTS PICK ACTIVITY</b>	What is Pick Activity?
	What is the Significance of Pick Activity in Business Process Orchestrations?
	A break-down into the Pick Activity
	What is On Message Branch of a Pick Activity?
	What is On Alarm Branch of a Pick Activity?
<ul style="list-style-type: none"> <li>Building a Composite with a Synchronous BPEL Process Service Component exposing Multiple Operations and the Composite uses Pick &amp; Reply Activities to send back a Synchronous Response back to each of the Service Requesters – Pick On Message Branch Demo, Creating Multi-Operation BPEL Process Demo</li> <li>Building a Composite with a Asynchronous BPEL Process Service Component, invoking the above created Wait Activity Process to demonstrate the Web Service Time Out Logic using the On Alarm Branch of Pick Activity</li> </ul>	
<b>ORACLE MEDIATOR COMPONENT</b>	Re-visiting the Concept of ESB
	What is Oracle Mediator Component?

	Routing Rules in a Mediator?
	What are Filter Conditions?
	What are Transformations?
	What is the Target Node in a Routing Rule?
	Types of Mediator Routing Rules
	Sequential Routing Rule
	Parallel Routing Rule
<b>JCA ADAPTERS</b>	What is an Enterprise Information System?
	Examples of Enterprise Information System?
	What are JCA Adapters?
	What are JCA Header Properties?
	Types of JCA Adapters
<b>ORACLE MEDIATOR COMPONENT &amp; JCA FILE ADAPTER</b>	What is a File Adapter?
	What are the Operations in a File Adapter?
	What is File Polling?
	Read & Write Operations in a File Adapter
	How are the non-XML Structures defined in SOA?
	What are native XSDs -NXSDs?
	How to Route Files via a Mediator?
	Building a Composite with an Asynchronous – Fire – and – Forget Mediator Service Component to route files
	Configuring a File Adapter to read XML files from a dedicated file directory
	Configuring a File Adapter to write CSV files onto a dedicated file directory
	Configuring a File Adapter to write Fixed Length files onto a dedicated file directory
	Generating the NXSDs for CSV & Fixed Length File Structures
	Applying filter conditions in order to demonstrate Mediator's Content Based Routing capabilities
	Applying Message Transformations in order to demonstrate Mediator's Transformation capabilities
<b>ORACLE MEDIATOR COMPONENT &amp; JCA DB ADAPTER</b>	What is DB / Database Adapter?
	What are the Operations in a Database Adapter?
	What is DB polling?
	Building a Composite with an Asynchronous – Fire – and – Forget Mediator Service Component to route messages onto a Database Table
	Configure a Database Adapter to insert XML messages onto a Database Table



✚ Building a Composite with a Synchronous Mediator Service Component in order to query a database table and route the result set back to the Service Requestors	
✚ Setting up a Data Source	
✚ Setting up a Database Adapter JNDI	
✚ Linking the Data Source with Database Adapter JNDI	
✚ Re-deploying the Database Adapter	
<b>ORACLE MEDIATOR COMPONENT &amp; JMS ADAPTER</b>	What is JMS?
	What are JMS Queues & Topics?
	What are JMS Modules?
	What are JMS Servers?
	What is a JMS System?
	What is a Persistent Store?
	What is a Sub-Deployment?
	What is JCA JMS Adapter?
	What are the Operations in a JMS Adapter?
	How to configure a JMS Adapter for Weblogic JMS?
Routing Messages onto the JMS via a Mediator	
✚ Building a Composite with an Asynchronous – Fire – and – Forget Mediator Service Component to consume and produce messages from and to Weblogic JMS Queues	
✚ Building a Composite with an Asynchronous – Fire – and – Forget Mediator Service Component to consume and produce messages from and to Weblogic JMS Topics	
✚ Creating Weblogic JMS Queues	
✚ Creating Weblogic JMS Topics	
✚ Creating Weblogic Connection Factories	
✚ Creating Weblogic JMS Adapter JNDIs	
✚ Linking a Weblogic Connection Factory to Weblogic JMS Adapter JNDI	
✚ Creating a Plan.xml	
✚ Re-Deploying the JCA Adapter	
<b>ORACLE MEDIATOR COMPONENT &amp; FTP ADAPTER</b>	What is FTP?
	How to work with Remote File Systems in Oracle SOA Suite?
	The concepts of FTP Put and FTP Get?
	What is FTP Adapter?
	Operations in an FTP Adapter
	Differences between FTP & File Adapter
	Routing Files via a Mediator
✚ Setting up a File Zilla FTP Server	

✚ Creating FTP User Accounts	
✚ Creating FTP Directories	
✚ Creating an FTP Adapter JNDI	
✚ Building a Composite with an Asynchronous – Fire – and – Forget Mediator Service Component to route files onto the FTP Server	
<b>ORACLE MEDIATOR &amp; ORACLE BPEL PROCESS MANAGER</b>	When to use Oracle BPEL & Oracle Mediator Together?
	When to use Oracle BPEL?
	When to use Oracle Mediator?
✚ Building a Synchronous BPEL Composite to Invoke a Mediator Composite	
✚ Building a Synchronous Mediator Composite to Invoke a BPEL Composite	
✚ Building a Synchronous Mediator Composite to Invoke a Mediator Service Component – Intra Component Interaction Demo in a Composite	
<b>ORACLE BPEL – ADVANCED CONCEPTS FLOW &amp; FLOW-N ACTIVITY</b>	What is meant by Parallel Processing?
	What is Flow Activity?
	Significance of Flow Activity in Parallel Processing
	What is Flow-N Activity?
	Significance of Flow-N Activity in Parallel Processing
✚ Building a Synchronous BPEL Composite, to demonstrate Flow Activity	
✚ Building a Synchronous BPEL Composite, to demonstrate Flow-N Activity	
✚ Setting up the Composites to participate in Parallel Processing using Flow & Flow-N	
<b>ORACLE BPEL – ADVANCED CONCEPTS COMPENSATE ACTIVITY &amp; COMPENSATION HANDLERS</b>	What is Compensation?
	What is Web Service Compensation?
	Need for Web Service Compensation?
	What is a Compensation Handler?
	What is a Compensate Activity?
✚ Building a Synchronous BPEL Composite to do Web Service Compensation using Compensate Activity & Compensation Handlers	
<b>ORACLE BPEL – ADVANCED CONCEPTS – CORRELATION</b>	What is Message Correlation?
	Need for Correlating Messages
	Defining Property Sets
	Defining Correlation Sets
	Defining Property Aliases

✚ Building Two Asynchronous BPEL Composites, to demonstrate Message Correlations	
ORACLE EVENT DELIVERY NETWORK – EDN	What is EDN?
	What are Events?
	What are Event Definition Files?
	Parts of an EDN files
	Defining Events & Message Payloads
✚ Building an EDN File and define Events and their Payloads	
✚ Building a Fire – and – Forget Mediator Composite to Publish an Event	
✚ Building a Fire – and – Forget BPEL Composite to Subscribe to an Event	
ORACLE HUMAN WORKFLOW SERVICE COMPONENT	Can every business be Automated?
	Involving Human Interactions in Business Processes
	What is Human Work Flow Service Component?
	What are routings & assignments in a Human Work Flow?
	What is a Task?
✚ Building an Asynchronous – with – Delayed – Response BPEL composite to invoke a Human Work Flow Service Component	
ORACLE BUSINESS RULES	What are Business Rules?
	Need for Business Rules?
	Advantages of using Business Rules?
	Configuring Business Rules?
	What is a Dictionary?
	What is a Rule Set?
	What are Rules?
	Overview of Business Rule Service Component
	Overview of Business Rule Editor
ORACLE BUSINESS ACTIVITY MONITORING	What is Business Activity Monitoring?
	Need to monitor Business Processes?
	Introduction to BAM Adapter
	Introduction to BAM Console
	Creating Data Objects & Reports

✚ Configuring a BAM Adapter to populate the Data Objects	
✚ Building a BPEL Composite to invoke the BAM Adapter	
✚ Monitoring Reports through Oracle BAM Console	
<b>ERROR HANDLING / FAULT MANAGEMENT</b>	What are Faults?
	What are Runtime & Business Faults?
	Handling Faults in BPEL using Catch and Catch-All Blocks
	Handling Faults in Mediator
	Handling Faults with Fault Management Framework
	What are Fault Policies & Fault Bindings
	What are Actions, Conditions & Policy IDs
✚ Building a Synchronous BPEL Composite to demonstrate fault handling using catch & catch all blocks	
✚ Building Fault Policy & Fault Bindings Files	
✚ Building a Synchronous BPEL Composite that invokes the above Composite, to demonstrate fault handling using the Fault Management Framework	
<b>MISC</b>	
✚ Working with DVMs Domain - Value - Maps	
✚ Deploying and Un-deploying SOA Composites	
✚ Monitoring SOA Composites	
✚ Dynamic Partner-Links	
✚ Partner-Links	
✚ Monitoring SOA composites via Enterprise Manager EM Console	
✚ Setting up the Audit Levels	
✚ Working with Transformation Functions	
✚ Working with in-built XPath Functions	
✚ Real Time Project Explanation	

Wishing you a rewarding Oracle SOA 11g Training with us...

Cheers,

**Silicon CareerJet Technologies Team**