

Advanced Business Component Development With Enterprise JavaBeans Technology (WJB-351A)

The Advanced Business Component Development With Enterprise JavaBeans Technology course provides students with the knowledge of how to develop robust back-end functionality using Enterprise JavaBeans (EJB) technology. This course uses an online auction scenario to demonstrate how to leverage container-managed services with entity, session, and message beans to resolve the real-world problems presented by an electronic commerce application. The course emphasizes providing practical EJB technology coding experience, while also covering the designs and best practices used to solve transaction, messaging, security, and legacy integration issues. In addition, this course looks at how EJB technology components can be integrated with web service technologies. This course assumes a basic knowledge of Enterprise JavaBeans components, such as that provided in the course FJ-310: Developing Applications for the J2EE Platform.

Who Can Benefit

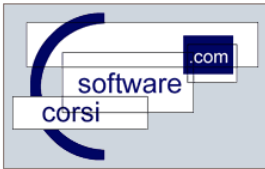
Students who can benefit from this course are developers of EJB technology business components who are tasked with the following responsibilities:

- Analyzing, designing, developing, and testing EJB technology applications
- Deploying an EJB technology application
- Integrating an EJB technology application with a legacy application

Prerequisites

To succeed fully in these courses, students should be able to:

- Display experience with the Java programming language
- Display experience with creating simple Java 2 Enterprise Edition (J2EE) applications using session or entity beans (practical experience required; theoretical knowledge would be insufficient) as provided in the course FJ-310 "Developing Applications for the J2EE Platform"
- Display experience with distributed computing concepts in Java technology: (Remote Method Invocation [RMI], Java Naming and Directory Interface [JNDI] Application Programming Interface [API], Java Interface Definition Language [IDL] technology)
- Demonstrate some knowledge of declarative programming concepts used in J2EE technology
- Demonstrate some practical experience with a J2EE technology application server



Skills Gained

Upon completion of this course, students should be able to:

- Implement business-tier functionality using EJB technology
- Describe best practices and other advanced issues in business component development with EJB technology
- Assemble and deploy EJB technology business-tier components on an application server
- Integrate an EJB technology-based application using Java Messaging Service API, the Java Connector Architecture, and web services



Related Courses

Before:

- [Java Programming Language \(SL-275\)](#)
- [Java Programming Language \(WJB-275A\)](#)
- Distributed Programming With Java Technology (SL-301)
- [Developing Applications for the J2EE Platform \(FJ-310\)](#)
- [Developing Applications for the J2EE Platform \(WJB-310A\)](#)

After:

- [Architecting and Designing J2EE Applications \(SL-425\)](#)
- [J2EE Patterns \(SL-500\)](#)



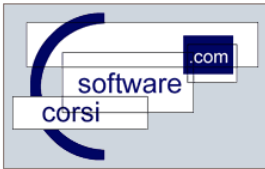
Course Content

Module 1 - Examining EJB Components

- Describe EJB component client interfaces
- Compare EJB component types
- Describe the basic characteristics of session beans
- Describe the basic characteristics of entity beans
- Describe the life cycle of stateless and stateful session beans and entity beans
- Describe container callback methods for session beans and entity beans

Module 2 - Packaging and Deploying EJB Components

- Examine the enterprise bean application packaging and deployment process
- Create the EJB component archive (EJB JAR) files



Create the preliminary application client archive (initial client JAR) file
Create the deployable application archive (application EAR) file
Deploy applications built with J2EE technology (J2EE applications)
Examine vendor-specific deployment issues

Module 3 - Introducing the Auction Application

Describe the auction application
Define the domain objects of the auction application
Describe the implementation model for the auction system

Module 4 - Implementing EJB 2.0 Container-Managed Persistence (CMP)

Model business data
Implement EJB 2.0 CMP
Describe the CMP code examples

Module 5 - Implementing Container-Managed Relationships (CMR)

Model business relationships in the data model
Model business relationships in the object model
Define relationships
Implement one-to-one CMR
Implement many-to-many CMR
Change partner entities in CMR

Module 6 - Using the EJB Query Language (EJB QL)

Implement finder methods
Implement Enterprise bean Select methods
Implement home methods
Write queries using EJB QL

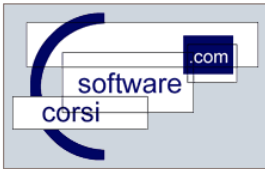
Module 7 - Developing J2EE Applications Using Messaging

Describe the roles of the participants in the JMS API messaging system
Write a message producer
Write an asynchronous message listener
Write a synchronous message listener
List the messaging capabilities and limitations of session, entity, and message-driven beans

Module 8 - Developing Message-Driven Beans

Describe the properties and life cycle of message-driven beans
Create a JMS message-driven bean
Create a non-JMS message-driven bean

Module 9 - Implementing Transactions



Describe the transaction demarcation task
Implement Container-Managed Transactions (CMT)
Interact programmatically with an ongoing CMT transaction
Implement Bean-Managed Transactions (BMT)
Apply transactions to messaging

Module 10 - Handling Exceptions

Introduce exceptions in J2EE applications
Describe the exception path in a J2EE application environment
Describe EJB container exception handling
Handle exceptions in an enterprise beans method
Handle exceptions in an enterprise beans client code
Review specific issues relating to exception handling in EJB technology applications

Module 11 - Using Timer Services

Create a timer callback notification
Process a timer callback notification
Manage timer objects

Module 12 - Implementing Security

Understand the J2EE security architecture
Authenticate the caller
Examine J2EE authorization strategies
Use declarative authorization
Use programmatic authorization
Examine the responsibilities of the deployer

Module 13 - Integrating With Legacy Systems

Examine the requirements for EIS connectivity modules
Compare alternative implementations of EIS connectivity modules
Describe the J2EE technology connector architecture
Use the Common Client Interface (CCI) API interfaces
Use a message-driven bean resource adapter
Describe the interoperability between the EJB technology and Common Object Request Broker Architecture (CORBA) protocols

Module 14 - Implementing Web Service Endpoint Interfaces

Examine the enterprise bean web service implementation model
Implement web services using stateless session beans

Module 15 - Using EJB Technology Best Practices

Define best practices and state the benefits of using EJB technology best practices
Select and apply known patterns to J2EE application design