

## Microsoft Business Intelligence

### Training Content

I	SSIS
1	<b>Introduction to Integration Services</b>
	Defining SQL Server Integration Services
	Exploring the need for migrating diverse data
	The role of business intelligence (BI)
2	<b>SSIS Architecture and Tools</b>
	Managing heterogeneous data
	<ul style="list-style-type: none"> <li>Leveraging the Extract, Transform and Load (ETL) capabilities of SSIS</li> </ul>
	<ul style="list-style-type: none"> <li>Running wizards for basic migrations</li> </ul>
	<ul style="list-style-type: none"> <li>Creating packages for complex tasks</li> </ul>
	Illustrating SSIS architecture
	<ul style="list-style-type: none"> <li>Distinguishing between data flow pipeline and package runtime</li> </ul>
	<ul style="list-style-type: none"> <li>Executing packages on the client side or hosted in the SSIS service</li> </ul>
	Upgrading legacy DTS
	<ul style="list-style-type: none"> <li>Executing existing DTS packages in the SSIS environment</li> </ul>
	<ul style="list-style-type: none"> <li>Converting DTS packages to SSIS with the migration wizard</li> </ul>
	<ul style="list-style-type: none"> <li>Logging migration results</li> </ul>
	Implementing Tasks and Containers
	Utilizing basic SSIS objects
	<ul style="list-style-type: none"> <li>Configuring connection managers</li> </ul>
	<ul style="list-style-type: none"> <li>Adding data flow tasks to packages</li> </ul>
	<ul style="list-style-type: none"> <li>Reviewing progress with data viewers</li> </ul>
	<ul style="list-style-type: none"> <li>Assembling tasks to perform complex data migrations</li> </ul>
	Operating system level tasks
	<ul style="list-style-type: none"> <li>Copying, moving and deleting files</li> </ul>
	<ul style="list-style-type: none"> <li>Transferring files with the FTP task</li> </ul>
	<ul style="list-style-type: none"> <li>Reading system information with WMI query language (WQL)</li> </ul>
	Communicating with external sources
	<ul style="list-style-type: none"> <li>Sending messages through mail</li> </ul>
	<ul style="list-style-type: none"> <li>Detecting system events with WMI</li> </ul>
	Processing XML
	<ul style="list-style-type: none"> <li>Iterating XML nodes</li> </ul>
	<ul style="list-style-type: none"> <li>Writing XML files from databases</li> </ul>
3	<b>Extending Capabilities with Scripting</b>
	Writing expressions
	<ul style="list-style-type: none"> <li>Making properties dynamic with variables</li> </ul>
	<ul style="list-style-type: none"> <li>Building expressions in Expression Builder</li> </ul>
	Script Task
	<ul style="list-style-type: none"> <li>Extending functionality with the Script Task</li> </ul>
	<ul style="list-style-type: none"> <li>Debugging, breakpoints, watches</li> </ul>
4	<b>Transforming with the Data Flow Task</b>
	Performing transforms on columns
	<ul style="list-style-type: none"> <li>Converting and calculating columns</li> </ul>
	<ul style="list-style-type: none"> <li>Transforming with Character Map</li> </ul>

	Combining and splitting data
	<ul style="list-style-type: none"> <li>• Profiling data</li> </ul>
	<ul style="list-style-type: none"> <li>• Merge, Union, Conditional Split</li> </ul>
	<ul style="list-style-type: none"> <li>• Multicasting and converting data</li> </ul>
	Manipulating row sets and BLOB data
	<ul style="list-style-type: none"> <li>• Aggregate, sort, audit and look up data</li> </ul>
	<ul style="list-style-type: none"> <li>• Importing and exporting BLOB data</li> </ul>
	<ul style="list-style-type: none"> <li>• Redirecting error rows</li> </ul>
	Performing database operations
	<ul style="list-style-type: none"> <li>• Implementing Change Data Capture (CDC)</li> </ul>
	<ul style="list-style-type: none"> <li>• Executing a SQL task</li> </ul>
	<ul style="list-style-type: none"> <li>• Bulk inserting data from text files</li> </ul>
<b>5</b>	<b>Error Handling, Logging and Transactions</b>
	Organizing package work flow
	<ul style="list-style-type: none"> <li>• Defining success, failure, completion and expression precedence constraints</li> </ul>
	<ul style="list-style-type: none"> <li>• Handling events and event bubbling</li> </ul>
	Designing robust packages
	<ul style="list-style-type: none"> <li>• Choosing log providers</li> </ul>
	<ul style="list-style-type: none"> <li>• Adapting solutions with package configurations</li> </ul>
	<ul style="list-style-type: none"> <li>• Auditing package execution results</li> </ul>
<b>6</b>	<b>Administering Business Intelligence</b>
	Managing and securing packages
	<ul style="list-style-type: none"> <li>• Storing packages in Package Store and msdb</li> </ul>
	<ul style="list-style-type: none"> <li>• Encrypting packages with passwords and user keys</li> </ul>
	Integrating with other BI components
	<ul style="list-style-type: none"> <li>• Displaying data in Reporting Services</li> </ul>
	<ul style="list-style-type: none"> <li>• Accessing package data with ADO.NET</li> </ul>
<b>II</b>	<b>SSAS</b>
<b>7</b>	<b>Building and Modifying an OLAP Cube</b>
	Designing a Unified Dimension Model (UDM)
	<ul style="list-style-type: none"> <li>• Identifying measures and their suitable granularities</li> </ul>
	<ul style="list-style-type: none"> <li>• Adding new measure groups and creating custom measures</li> </ul>
	Creating dimensions
	<ul style="list-style-type: none"> <li>• Implementing a Star and Snowflake Schema</li> </ul>
	<ul style="list-style-type: none"> <li>• Managing Slow Changing Dimensions (SCD)</li> </ul>
	<ul style="list-style-type: none"> <li>• Identifying role-play dimensions</li> </ul>
<b>8</b>	<b>Extending the Cube with Hierarchies</b>
	Creating hierarchies
	<ul style="list-style-type: none"> <li>• Building natural hierarchies</li> </ul>
	<ul style="list-style-type: none"> <li>• Many-to-many hierarchies</li> </ul>
	<ul style="list-style-type: none"> <li>• Creating attribute relationships</li> </ul>
	<ul style="list-style-type: none"> <li>• Distinguishing between ragged, balanced and unbalanced hierarchies</li> </ul>
	<ul style="list-style-type: none"> <li>• Discretizing attribute values with the Clusters and Equal Areas algorithms</li> </ul>
	Parent-child relationships
	<ul style="list-style-type: none"> <li>• Defining parent and key attributes</li> </ul>
	<ul style="list-style-type: none"> <li>• Generating level captions with the Naming Template feature</li> </ul>
	<ul style="list-style-type: none"> <li>• Removing repeated entries with the MembersWithData property</li> </ul>

9	<b>Exploiting Advanced Dimension Relationships</b>
	Storing dimension data in fact tables
	<ul style="list-style-type: none"> <li>• Building a degenerate dimension</li> <li>• Configuring fact relationships</li> </ul>
	Saving space with referenced dimension relationships
	<ul style="list-style-type: none"> <li>• Identifying candidates for referenced relationships</li> <li>• Utilizing the Dimension Usage tab to configure referenced relationships</li> </ul>
	Including dimensions with many-to-many relationships
	<ul style="list-style-type: none"> <li>• Implementing intermediate measure groups and dimensions</li> <li>• Reporting on many-to-many dimensions without double counting</li> </ul>
10	<b>Designing Optimal Cubes</b>
	Assembling cube components
	<ul style="list-style-type: none"> <li>• Selecting the appropriate fact tables</li> <li>• Adding cube dimensions</li> <li>• Distinguishing between additive, semiadditive and nonadditive measures</li> </ul>
	Designing storage and aggregations
	<ul style="list-style-type: none"> <li>• Choosing between ROLAP, MOLAP and HOLAP</li> <li>• Partitioning cubes for improved performance</li> <li>• Designing aggregations with the Aggregation Design Wizard</li> <li>• Leveraging the Usage-Based Optimization Wizard</li> </ul>
	Automating processing
	<ul style="list-style-type: none"> <li>• Exploiting XMLA scripts and SSIS</li> <li>• Refreshing cubes with Proactive Caching</li> </ul>
11	<b>Performing Advanced Analysis with MDX</b>
	Retrieving data with MDX
	<ul style="list-style-type: none"> <li>• Defining tuples, sets and calculated members</li> <li>• Querying cubes with MDX</li> <li>• Navigating hierarchies with MDX and utilizing set functions</li> </ul>
	Monitoring business performance with KPIs
	<ul style="list-style-type: none"> <li>• Building goal, status and trend expressions</li> <li>• Using PARALLELPERIOD to compare with past time periods</li> </ul>
	Creating calculations with MDX
	<ul style="list-style-type: none"> <li>• Adding runtime calculations to the cube</li> <li>• Comparing MDX calculations with DSV calculated columns</li> </ul>
12	<b>Securing Cube Data</b>
	Securing data and simplifying the user interface
	<ul style="list-style-type: none"> <li>• Distinguishing between perspective feature and security</li> <li>• Creating roles for administrative privileges</li> <li>• Securing dimension data</li> <li>• Implementing cell-level security</li> </ul>
	Gaining Business Advantage with Data Mining
	Determining the correct model
	<ul style="list-style-type: none"> <li>• Identifying business tasks for data mining</li> <li>• Training and testing data mining algorithms</li> <li>• Comparing algorithms with the accuracy chart and classification matrix</li> <li>• Optimizing returns with the Profit Chart</li> </ul>
	Performing real-world predictions
	<ul style="list-style-type: none"> <li>• Classifying with the Decision Trees, Neural Network and Naive Bayes algorithms</li> <li>• Predicting with the Time Series algorithm</li> </ul>

	Deploying models
	<ul style="list-style-type: none"> <li>• Predicting new cases with algorithms</li> </ul>
	<ul style="list-style-type: none"> <li>• Utilizing DMX to perform batch and singleton predictions</li> </ul>
	<ul style="list-style-type: none"> <li>• Exploring results with data mining viewers</li> </ul>
<b>III</b>	<b>SSRS</b>
13	<b>Introduction to SQL Server 2008 Reporting Services</b>
	<ul style="list-style-type: none"> <li>• Identifying deployment: native, integrated or single server</li> </ul>
	<ul style="list-style-type: none"> <li>• Managing Web farm deployment with/without SharePoint</li> </ul>
14	<b>Developing Reports</b>
	Designing fundamental reports
	<ul style="list-style-type: none"> <li>• Connecting to relational and multidimensional data sources</li> </ul>
	<ul style="list-style-type: none"> <li>• Generating a Tablix reporting structure</li> </ul>
	<ul style="list-style-type: none"> <li>• Building an interactive chart</li> </ul>
	<ul style="list-style-type: none"> <li>• Creating reports with richly formatted text</li> </ul>
	Composing expressions
	<ul style="list-style-type: none"> <li>• Computing custom fields</li> </ul>
	<ul style="list-style-type: none"> <li>• Managing built-in collections</li> </ul>
	<ul style="list-style-type: none"> <li>• Linking expressions to properties</li> </ul>
	<ul style="list-style-type: none"> <li>• Employing conditional formatting</li> </ul>
	Arranging and sorting data
	<ul style="list-style-type: none"> <li>• Multiple-level grouping and categorizing the results</li> </ul>
	<ul style="list-style-type: none"> <li>• Applying aggregate functions</li> </ul>
	Producing various outputs from a Tablix
	<ul style="list-style-type: none"> <li>• Creating parallel dynamic group report formats</li> </ul>
	<ul style="list-style-type: none"> <li>• Combining dynamic and static columns</li> </ul>
15	<b>Integrating Parameters and Filters</b>
	Incorporating parameters into reports
	<ul style="list-style-type: none"> <li>• Yielding subsets of data with query parameters</li> </ul>
	<ul style="list-style-type: none"> <li>• Aligning report parameters to query parameters</li> </ul>
	<ul style="list-style-type: none"> <li>• Constructing cascading report parameters</li> </ul>
	<ul style="list-style-type: none"> <li>• Transmitting parameters to stored procedures</li> </ul>
	<ul style="list-style-type: none"> <li>• Handling multivalued parameters</li> </ul>
	Applying filters to report data
	<ul style="list-style-type: none"> <li>• Augmenting performance with filters</li> </ul>
	<ul style="list-style-type: none"> <li>• Determining filters vs. query parameters</li> </ul>
	Implementing Interactive Features
	Combining multiple data regions in one report
	<ul style="list-style-type: none"> <li>• Applying sequential and nested regions</li> </ul>
	<ul style="list-style-type: none"> <li>• Creating master/detail reports and linking subreports</li> </ul>
	Executing advanced data visualizations
	<ul style="list-style-type: none"> <li>• Applying the radial and linear gauge</li> </ul>
	<ul style="list-style-type: none"> <li>• Customizing charts with scale breaks</li> </ul>
	<ul style="list-style-type: none"> <li>• Charting KPIs from Analysis Services</li> </ul>
	Showing robust data with relevant detail
	<ul style="list-style-type: none"> <li>• Drilling through report detail and drilling down report data</li> </ul>
	<ul style="list-style-type: none"> <li>• Navigating reports with document maps</li> </ul>
	<ul style="list-style-type: none"> <li>• Reporting with hierarchical rows and dynamic headers</li> </ul>

16	<b>Deploying and Delivering Reports</b>
	Deploying reports to the server
	<ul style="list-style-type: none"> <li>• Publishing reports and configuring project properties</li> </ul>
	<ul style="list-style-type: none"> <li>• Verifying results with Report Manager</li> </ul>
	Identifying delivery options
	<ul style="list-style-type: none"> <li>• Electing on demand or via subscription</li> </ul>
	<ul style="list-style-type: none"> <li>• Enhancing performance with cached instances and snapshots</li> </ul>
	<ul style="list-style-type: none"> <li>• Configuring snapshot history</li> </ul>
	<ul style="list-style-type: none"> <li>• Formatting different outputs</li> </ul>
	Dispatching subscription reports
	<ul style="list-style-type: none"> <li>• Publishing reports via e-mail and fileshare</li> </ul>
	<ul style="list-style-type: none"> <li>• Seamlessly delivering reports by data-driven subscriptions</li> </ul>
	Integrating reports with SharePoint
	<ul style="list-style-type: none"> <li>• Deploying reports to SharePoint</li> </ul>
	<ul style="list-style-type: none"> <li>• Viewing results in Report Center and Data Connections libraries</li> </ul>
17	<b>Safeguarding Reporting Services</b>
	Structuring content security
	<ul style="list-style-type: none"> <li>• Leveraging existing Windows authentication</li> </ul>
	<ul style="list-style-type: none"> <li>• Establishing permission levels on report items</li> </ul>
	Ensuring the RS system
	<ul style="list-style-type: none"> <li>• Instituting varying levels of administrative roles</li> </ul>
	<ul style="list-style-type: none"> <li>• Allowing and withdrawing system-level permissions</li> </ul>
	Empowering Users with Ad Hoc Reporting
	Designing models for users
	<ul style="list-style-type: none"> <li>• Building personalized reports with Model Designer</li> </ul>
	<ul style="list-style-type: none"> <li>• Defining data source views</li> </ul>
	<ul style="list-style-type: none"> <li>• Creating and refining models</li> </ul>
	Designing reports with Report Builder
	<ul style="list-style-type: none"> <li>• Launching Report Builder to users across the enterprise</li> </ul>
	<ul style="list-style-type: none"> <li>• Dragging and dropping entities onto charts and tabular reports</li> </ul>
	<ul style="list-style-type: none"> <li>• Exploiting Analysis Services cubes as report models</li> </ul>
	Delivering Reports to Users
	<ul style="list-style-type: none"> <li>• Accessing and controlling reports using URLs</li> </ul>
	<ul style="list-style-type: none"> <li>• Leveraging RS Web services</li> </ul>
	<ul style="list-style-type: none"> <li>• Embedding reports in applications with the Report Viewer</li> </ul>
	<ul style="list-style-type: none"> <li>• Delivering reports through SharePoint</li> </ul>