

ITT Technical Institute
IT390
Business Database Administration
Onsite Course

SYLLABUS

Credit hours: 4

Contact/Instructional hours: 50 (30 Theory Hours, 20 Lab Hours)

Prerequisite(s) and/or Corequisite(s):

Prerequisite: IT203 Database Development or equivalent

Course Description:

Major features and functions of databases and major skill areas of a database administrator will be discussed in association with common issues such as capacity, efficiency and performance normally related to network administrators' daily tasks.

Syllabus: Business Database Administration

Instructor:	_____
Office hours:	_____
Class hours:	_____

Major Instructional Areas

1. SQL Server 2005 features
2. Server installation and upgrade
3. Client access configuration
4. User administration and security
5. Database object administration
6. Database backup and restore
7. Managing availability
8. Scheduling and notification
9. Database maintenance
10. Database performance
11. Server performance
12. Transaction management

Course Objectives

1. Identify key SQL Server 2005 editions and features.
2. Explain the requirements and procedures for installing and upgrading SQL Server.
3. Manage SQL Server client access.
4. Manage database access and access security.
5. Design and create databases and database objects.
6. Maintain databases and database objects.
7. Back up and restore database objects.
8. Configure high availability features.
9. Monitor and optimize server performance.
10. Monitor and optimize query performance.
11. Monitor, optimize, and troubleshoot transaction processing performance and locking.

SCANS Objectives

SCANS is an acronym for Secretary's Commission on Achieving Necessary Skills. The committee, created by the National Secretary of Labor in the early 1990s, created a list of skills and competencies that the committee feels are necessary for employees to function in a high-tech job market.

1. Acquire and evaluate information.
2. Use computers to process information.
3. Apply and adapt new knowledge and skills in both familiar and changing situations.
4. Demonstrate the ability to effectively and efficiently utilize the ITT Tech Virtual Library.
5. Select and analyze information and communicate the results.
6. Determine which set of procedures will produce the desired results and make clear recommendations including rationale.
7. Analyze systems and develop new or alternative systems.

8. Demonstrate the ability to make a rational decision based on analysis of accepted theories, evidence, and logical thinking.

Course Outline

Note: All graded activities, except the Project and Exam, are listed below in the pattern of <Unit Number>.<Assignment Number>. For example, Lab 1.1 refers to the 1st lab activity in Unit 1.

• Unit	• Activities
1— Overview and Features	<ul style="list-style-type: none"> • Content Covered: <ul style="list-style-type: none"> ○ <i>Microsoft SQL Server 2005 Unleashed:</i> <ul style="list-style-type: none"> ○ Chapter 1, "SQL Server 2005 Overview" ○ Chapter 3, "SQL Server Management Studio," pp. 57-73 • Labs: 1.1 • Assignments: 1.1
2— Installation and Upgrade	<ul style="list-style-type: none"> • Read <i>Microsoft SQL Server 2005 Unleashed:</i> <ul style="list-style-type: none"> ○ Chapter 6, "SQL Server System and Database Administration" ○ Chapter 7, "Installing SQL Server 2005" ○ Chapter 8, "Upgrading to SQL Server 2005" • Labs: 2.1 • Assignments: 2.1 • Course Project Part 1
3— Managing Access	<ul style="list-style-type: none"> • Read <i>Microsoft SQL Server 2005 Unleashed:</i> <ul style="list-style-type: none"> ○ Chapter 9, "Client Installation and Configuration" ○ Chapter 10, "Security and User Administration" • Labs: 3.1, 3.2 • Assignments: 3.1 • Course Project Part 2
4— Managing Database Objects	<ul style="list-style-type: none"> • Read <i>Microsoft SQL Server 2005 Unleashed:</i> <ul style="list-style-type: none"> ○ Chapter 18, "Creating and Managing Databases" ○ Chapter 19, "Creating and Managing Tables" ○ Chapter 20, "Creating and Managing Indexes" • Labs: 4.1 • Assignments: 4.1 • Quizzes: 4.1 • Course Project Part 3
5— Backup and Restore	<ul style="list-style-type: none"> • Read <i>Microsoft SQL Server 2005 Unleashed:</i> <ul style="list-style-type: none"> ○ Chapter 11, "Database Backup and Restore" ○ Chapter 27, "Database Snapshots" • Labs: 5.1 • Assignments: 5.1 • Course Project Part 4
6— Server and Database Availability	<ul style="list-style-type: none"> • Read <i>Microsoft SQL Server 2005 Unleashed:</i> <ul style="list-style-type: none"> ○ Chapter 14, "SQL Server High Availability" ○ Chapter 15, "Replication" ○ Chapter 16, "Database Mirroring" • Labs: 6.1 • Assignments: 6.1 • Exam I
7— Scheduling,	<ul style="list-style-type: none"> • Read <i>Microsoft SQL Server 2005 Unleashed:</i> <ul style="list-style-type: none"> ○ Chapter 12, "Database Mail"

• Unit	• Activities
Maintenance, and Notification	<ul style="list-style-type: none"> ○ Chapter 13,, “SQL Server Scheduling and Notification” ○ Chapter 28, “Database Maintenance” • Labs: 7.1 • Assignments: 7.1 • Course Project Part 5
8— Query Performance	<ul style="list-style-type: none"> • Read <i>Microsoft SQL Server 2005 Unleashed</i>: <ul style="list-style-type: none"> ○ Chapter 5, “SQL Server Profiler” ○ Chapter 29, “Indexes and Performance” • Labs: 8.1 • Assignments: 8.1 • Quizzes: 8.1 • Course Project Part 6
9— Managing Transactions and Locking	<ul style="list-style-type: none"> • Read <i>Microsoft SQL Server 2005 Unleashed</i>: <ul style="list-style-type: none"> ○ Chapter 26, “Transaction Management and the Transaction Log” ○ Chapter 32, “Locking and Performance” • Labs: 9.1 • Assignments: 9.1 • Course Project Part 7
10— Server Performance	<ul style="list-style-type: none"> • Read <i>Microsoft SQL Server 2005 Unleashed</i>: <ul style="list-style-type: none"> ○ Chapter 33, “Database Design and Performance” ○ Chapter 34, “Monitoring SQL Server Performance” • Labs: 10.1 • Assignments: 10.1 • Course Project Part 8
11— Review and Exam II	<ul style="list-style-type: none"> • Review • Exam II

Instructional Methods

This curriculum is designed to promote a variety of teaching strategies that support the outcomes described in the course objectives and that foster higher cognitive skills. Delivery makes use of various media and delivery tools.

You should already be familiar with ER modeling, data normalization, basic SQL statements, and basic database operations. These are critical content areas and the course reviews and expands on these areas. The remaining areas are new content critical to administering efficient and effective database solutions.

The course includes extensive hands-on activities, focusing on GUI management utilities and standard SQL language statements. Database platform-specific SQL statements and syntax are used.

Assignments are designed to strengthen your writing skills while emphasizing key database design and implementation concepts. You will be expected to explain database administration decisions clearly and concisely.

The course project will require you to describe and implement an administration plan based on a business database.

Instructional Materials and References

Student Textbook Package

Rankins, Ray, Paul Bertucci, Chris Gallelli, and Alex T. Silverstein. *Microsoft SQL Server 2005 Unleashed*. Indianapolis, IN: Sams Publishing, 2007.

Other Required Resources

- N/A

Equipment and Tools

- Standard classroom PC
- Microsoft Windows XP Professional Service Pack 2
- Microsoft SQL Server 2005
- Microsoft Office
- Microsoft Visio OR Microsoft PowerPoint
- Internet Access

References**ITT Tech Virtual Library**

Log on to the ITT Tech Virtual Library at <http://www.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.

- ITT Tech Virtual Library> Main Menu> Books> Books 24x7
 - Dewson, Robin. *Beginning SQL Server 2005 for Developers: From Novice to Professional*. Berkeley, CA: Apress, 2006.
 - Isakov, Victor, Marilyn Miller-White, J. Steven Jones, and Andy Warren. *MCITP Administrator: Microsoft SQL Server 2005 Optimization and Maintenance (70-444) Study Guide*. Indianapolis, IN: Sybex, 2007.
 - Morgan, Sara, and Tobias Thernstrom. *MCITP Self-Paced Training Kit (Exam 70-442): Designing and Optimizing Data Access by Using Microsoft SQL Server 2005*. Redmond, WA: Microsoft Press, 2007.
 - Nielson, Paul. *SQL Server 2005 Bible*. Indianapolis, IN: John Wiley & Sons, 2007.
 - Shapiro, Jeffrey. *Microsoft SQL Server 2005: The Complete Reference*. New York: McGraw-Hill/Osborne, 2007.
 - Whalen, Edward. *Microsoft SQL Server 2005 Administrator's Companion*. Redmond, WA: Microsoft Press, 2007.

Periodicals

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

- ITT Tech Virtual Library> Main Menu> Periodicals>
 - *Database Journal*
- ITT Tech Virtual Library> Main Menu> Periodicals> ProQuest Computing>
 - *SQL Server Magazine*
 - *Computer Weekly*
 - *Journal of Logic and Computation*
 - *Worldwide Databases*
 - *Information Week*

Reference Resources

You may click “Reference Resources” or use the “Search” function on the home page to find the following reference resource.

- Free Online Dictionary of Computing



Learning Guides

You may click “Learning Guides” or use the “Search” function on the home page to find the following learning guides.

- ITT Tech Virtual Library> Main Menu> Learning Guides>
 - Computer Technical Tutorials
 - Edumax
 - Programming Tutorials
 - SQL Course
 - XML Beginner's Guide



Other References

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

Web site

- Microsoft Developer Network (MSDN)

<http://msdn2.microsoft.com/en-us/default.aspx>

The Microsoft Developer Network site provides tools, languages, and tutorials for software developers.

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	10%
Course Project	15%
Labs	25%
Exam I	20%
Quizzes	10%
Exam II	20%
Total	100%

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)