Teaching Plan for SQL Programming, without holiday, Students

Subject/Module Title	Subject length in hours
SQL Programming	43

Subject Description

This course teaches the fundamentals of SQL programming and advanced information processing. Students will learn to query and modify data, create tables, enforce data integrity, and implement advanced data access techniques. Students will be equipped with skills to utilize the powerful and widespread SQL DBMS language to understand and provide data driven solutions to wide range of business challenges.

Textbooks/manuals and software

Beginning Microsoft SQL Server 2012 Programming by Paul Atkinson, Robert Vieira

ISBN: 978-1-118-10228-2

Method of Evaluation

(e.g., graded homework, quizzes, projects, final examination, et cetera; the type, number, and % value of each**)**

Type	Number	% Value	Type	Number	% Value	Type	Number	% Value
Exam	1	40						
Mini Project	1	60						

Teaching Method

Method	Number of hours
☒ Lecture	40
☐ Computer Based Learning	
☐ Seminar	
☐ Supervised Practical (e.g. clinic)	
☒ Supervised Lab (e.g. computers)	3
☐ Distance Education	

Location

☒ Classroom/Lab (College)

☐ Classroom/Lab (Off-campus)

☐ Practicum

Does this subject require a final examination or a formal evaluation?

☒ Yes ☐ No

If “Yes”, indicate the passing mark: 60%

Identify below the knowledge and skills objectives for this subject and identify the skills or competencies identified in Appendix F that each objective supports.

Note: As a general rule, the **knowledge** and **skill** objectives which are listed for each subject/module in this appendix will be a level below the competencies shown in Appendix F. These are the contributing competencies which must be acquired in order for the core competencies in Appendix F to be achieved.

Objectives ***Attach additional sheets if required***

Knowledge (the key elements that a student is expected to know upon completion of subject)
Upon completion of this subject, a student will know

1. The general rules of SQL Syntax
2. Operators
3. SQL Functions
4. SQL Clauses
5. Different types of SQL JOINS
6. Basic SQL Commands
7. The difference between Tables and Views
8. SQL Security Commands
9. Different types of Indexes
10. Different types of SQL syntax errors
11. Different types of SET commands
12. Dynamic uses of SQL

Skills (the key behaviors that a student is expected to be able to perform upon completion of subject)
Upon completion of this subject, a student will be able to

1. Build a block of data retrieval
2. Change the order of a column
3. Indent code
4. Execute JOIN with SQL Clauses
5. Execute Embedded SELECT statements with Nested queries
6. Execute INSERT, UPDATE and SELECT statements
7. Create Views
8. Create Indexes on SQL tables
9. Control transactions

Subject/Module Outline

Day/Date	Time, hours	Main Topic Sub-Topics
Mon 24 June	**5.0L**	1 **Introduction to Query, Expressions, Conditions and Operators (2.5 hours)** • General rules of Syntax [K-1] • Build Blocks of Data retrieval [S-1] • Change order of the Column [S-2] • Indenting Code [S-3] • Operators [K-2] • Miscellaneous Operators: IN and BETWEEN [K-2] 2 **Functions: Modeling the Data You Retrieve (4.0 hours)** • Aggregate Functions [K-3] • Date and Time Functions [K-3] • Arithmetic Functions [K-3] • Class exercises • Homework exercises
	(5.0)	
Tue 25 June	**5.0L** [0.5 hour] (5.0)	• Characters Functions [K-3] • Conversions Functions [K-3] 3 **Clause in SQL (2.5 hours)** • The Where Clause [K-4] [S-4] • The Order By Clause [K-4] [S-4] • The Grouping by Clause [K-4] [S-4] • The Having Clause [K-4] [S-4] 4 **Joining Tables (4.0 hours)** • Multiple Tables in Single Statement [K-4] • Class exercises • Lab work (Tutorial) • Homework exercises
Wed 26 June	**5.0L**	• Inner Joins [K-5] [S-4] • Outer joins [K-5] [S-4] • Joining a table to itself [K-5] [S-4] 5 **The Embedded SELECT Statement (2.5 hours)**
		• Using Aggregate Functions with Subquery [S-5]

Day/Date	Time, hours	Main Topic Sub-Topics
	[0.5 hour] (5.0)	• Nested Subquery [S-5] • Correlated Subqueries [S-5] • Project kick off: project requirements, descriptions, project schedule and new project tasks • Class exercises Lab work (Tutorial) • Homework exercises
Fri 28 June	**5.0L** [0.5 hour] (5.0)	• Using EXISTS, ANY, and ALL [S-5] 6 **Manipulating Data (2.5 hours)** • Insert Statement [K-6] [S-6] • Update Statement [K-6] [S-6] • Delete Statement [K-6] [S-6] • The INSERT and SELECT Statement [K-6] [S-6] 7 **Creating Views and Indexes (4.0 hours)** • SQL View Processing [K-7] [S-7] • Modify data in View [S-7] • Project reporting and new task orientation • Class exercises • Lab work (Tutorial) • Homework exercises
Mon 8 Jul	**5.0L** [0.5 hour] (5.0)	• View and Security [K-8] • Indexing Type [K-9] [S-8] 8 **Controlling Transactions I (4.0 hours)** • Beginning Transaction [S-9] • Finishing Transactions [S-9] • Project reporting and new task orientation • Class exercises Lab work (Tutorial) • Homework exercises
	5.0L	• Using Transaction Savepoints [S-9]
		9 **Controlling Transactions II (4.0 hours)**

Day/Date	Time, hours	Main Topic Sub-Topics
Tue 9 Jul	 [0.5 hour] (5.0)	• Table or View Does Not Exist [K-10] • Invalid username and password [K-10] • Invalid Column Name [K-10] • Missing Comma [K-10] • Project reporting and new task orientation • Class exercises Lab work (Tutorial) • Homework exercises
Wed 10 Jul	**5.0L** [0.5 hour] (5.0)	10 **User Defined Function (2.5 hours)** • Functions • Procedure 11 **Project Submission** • Project submission and discussion • Homework exercises and prepare the project presentation
Fri 12 Jul	**5.0L**	12 **Exam** • Exam

Note:

1) Hours in [ ] are the lab work hours with instructor's supervision in the classroom; hours in ( ) are the minimum time a student should spend on review, lab work, projects, assignments and pre-reading new chapters after school.

2) Legends: L- LECTURE hour, T: TUTORIAL hour