

| Topic # |   |                      |
|---------|---|----------------------|
|         | Topic Name                                | Learning Objective # |
| 1       | Understanding SQL                         | 1                    |
|         |   | 2                    |
|         |   |                      |
| 2       | DDL, DML, DQL, DCL, TCL                   | 2                    |
|         |   | 3                    |
|         |   | 4                    |
|         |   | 5                    |
|         |   | 6                    |
|         |   | 7                    |
|         |   |                      |
|         |   |                      |
| 3       | Understanding Constraints and their Types | 1                    |
|         |   | 2                    |
|         |   | 3                    |
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|         |   | 12                   |
|         |   | 13                   |
|         |   | 14                   |
|         |   |                      |
| 4       | SQL Operators                             | 1                    |
|         |   | 2                    |
|         |   | 3                    |
|         |   | 4                    |
|         |   | 5                    |
|         |   | 6                    |
| 5       | SQL Functions                             | 1                    |
|         |   |                      |

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|          |                              | 7  |
|          |                              |    |
| <b>6</b> | <b>Clauses in SQL</b>        |    |
|          |                              | 1  |
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|          |                              | 5  |
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| <b>7</b> | <b>Joins and their Types</b> |    |
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| <b>8</b> | <b>Sub-queries</b>           |    |
|          |                              | 1  |
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| 9 | Views and Indexes |    |
|---|-------------------|----|
|   |                   | 1  |
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| <b>Coverage of Each Module</b>  |  |  |
|---|--|--|
| <b>Learning Objective for the Topics</b>                                | <b>Estimated Duration<br/>In Mts for <i>Theory</i></b> | <b>Estimated Duration<br/>In Mts for <i>Hands-on</i></b> |
| <b>Understanding ANSI SQL</b>   | 30   | 15   |
| <b>ANSI SQL Data Types</b>  | 20   |  |
| <b>Estimated Time Duration for this Topic</b>                           | <b>50</b>  | <b>15</b>  |
| <b>Data Definition Language : CREATE, ALTER, RENAME, DROP, TRUNCATE</b> | 30   | 20   |
| <b>Data Manipulation Language : INSERT, UPDATE, DELETE</b>              | 30   | 20   |
| <b>Data Query Language : SELECT, FETCH FIRST</b>                        | 30   | 10   |
| <b>Data Control Language : GRANT, REVOKE,</b>                           | 30   | 20   |
| <b>Transaction Control Language : COMMIT, SAVEPOINT, ROLLBACK</b>       | 35   | 20   |
| <b>Case study</b>   | 10   | 20   |
| <b>Estimated Time Duration for this Topic</b>                           | <b>165</b>   | <b>110</b>   |
| <b>Data Integrity</b>   | 20   |  |
| <b>Integrity Constraints</b>  | 20   |  |
| <b>Entity integrity</b>   | 15   |  |
| <b>PRIMARY KEY Constraint</b>   | 15   | 10   |
| <b>Sequence generators</b>  | 20   |  |
| <b>Referential Integrity</b>  | 10   |  |
| <b>FOREIGN KEY Constraint</b>   | 15   | 10   |
| <b>Domain Integrity</b>   | 15   |  |
| <b>NOT NULL Constraint</b>  | 15   | 10   |
| <b>UNIQUE KEY Constraint</b>  | 15   | 10   |
| <b>CHECK Constraint</b>   | 15   | 10   |
| <b>User Defined Integrity</b>   | 10   |  |
| <b>Enabling and Disabling Constraints</b>                               | 20   | 10   |
| <b>Case Study</b>   | 10   | 20   |
|   | <b>215</b>   | <b>80</b>  |
| <b>SQL Operators &amp; their types</b>                                  | 15   |  |
| <b>Arithmetic operators</b>   | 30   | 10   |
| <b>Comparison operators</b>   | 30   | 10   |
| <b>Logical operators</b>  | 30   | 10   |
| <b>Set operators</b>  | 30   | 10   |
| <b>Case Study</b>   |  | 40   |
|   | <b>135</b>   | <b>80</b>  |
| <b>ANSI (SQL 99) SQL Functions Classification</b>                       | 15   |  |

|  |            |            |
|--|------------|------------|
| » Deterministic and Nondeterministic functions                     | 20         |            |
| » Aggregate Functions and Scalar Functions                         | 20         | 15         |
| » String Functions, Mathematical Functions                         | 20         | 15         |
| » Miscellaneous Functions (COALESCE & NULLIF)                      | 30         | 15         |
| Nesting of Functions & SQL Expression                              | 25         |            |
| Case study   |            | 60         |
| <b>Estimated Time Duration for this Topic</b>                      | <b>130</b> | <b>105</b> |
| <b>Group By Clause</b>   | 20         | 15         |
| <b>Having Clause</b>   | 20         | 15         |
| <b>Order By Clause</b>   | 20         | 15         |
| <b>Order of Execution of Clauses in SELECT Statement</b>           | 15         |            |
| Case study   |            | 35         |
| <b>Estimated Time Duration for this Topic</b>                      | <b>75</b>  | <b>80</b>  |
| <b>JOIN &amp; JOIN Style</b>                                       | 25         | 10         |
| <b>Theta Style</b>   | 10         | 10         |
| <b>ANSI Style : JOIN ... ON &amp; JOIN ... USING</b>               | 20         | 10         |
| <b>CROSS JOIN</b>  | 15         | 10         |
| <b>INNER JOIN</b>  | 10         |            |
| <b>EQUI-JOIN</b>   | 15         | 10         |
| <b>NATURAL JOIN</b>  | 15         | 10         |
| <b>OUTER JOIN</b>  | 10         |            |
| <b>LEFT OUTER JOIN</b>   | 15         | 10         |
| <b>RIGHT OUTER JOIN</b>  | 15         | 10         |
| <b>FULL OUTER JOIN</b>   | 15         | 10         |
| <b>SELF JOIN</b>   | 15         | 10         |
| Case study   |            | 70         |
| <b>Estimated Time Duration for this Topic</b>                      | <b>180</b> | <b>170</b> |
| <b>Understanding Subqueries</b>                                    | 35         |            |
| <b>Advantages of subqueries</b>                                    | 25         |            |
| <b>Rules of subqueries</b>   | 25         |            |
| <b>Using Subqueries With SELECT, INSERT, UPDATE, DELETE</b>        | 35         | 40         |
| <b>Subqueries Types</b>  | 15         |            |
| <b>Scalar Subquery</b>   | 20         | 10         |
| <b>Single Row Subquery</b>   | 30         | 10         |
| <b>Multiple Row Subquery</b>                                       | 30         | 10         |
| <b>Usage of IN, NOT IN, ALL, ANY, and SOME</b>                     | 30         | 40         |
| <b>Correlated Subqueries</b>                                       | 30         | 15         |
| <b>Usage of EXISTS, NOT EXISTS</b>                                 | 30         | 20         |
| <b>Difference between Correlated &amp; Non-Correlated Subquery</b> | 20         |            |
| Case study   |            | 80         |
| <b>Estimated Time Duration for this Topic</b>                      | <b>325</b> | <b>225</b> |

| <b>Database Objects</b>                                   | 20         |           |
|---|------------|-----------|
| <b>What is View?</b>                                      | 30         |           |
| <b>Advantages of View</b>                                 | 20         |           |
| <b>Inline View</b>  | 20         | 10        |
| <b>What is Index ?</b>                                    | 25         | 10        |
| <b>Index Architecture : Non-clustered &amp; Clustered</b> | 35         |           |
| <b>Unique Index</b>                                       | 30         | 10        |
| <b>Case study</b>   |            | 50        |
| <b>Estimated Time Duration for this Topic</b>             | <b>180</b> | <b>80</b> |

| Estimated Duration<br>In Mts<br>Total |     |
|---------------------------------------|-----|
|                                       |     |
| 45                                    |     |
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