

**Faculty of Science and Information Technology**

**Department of Software Engineering**

**Course Code: SWE 211 Lab, Course Title: Introduction to Database with Lab**

1. OBJECTIVES

The objective of this course is to provide the participants the strong knowledge and skills about the relational database design and manipulation using SQL (Structured Query Languages).

1. OUTCOMES

After completion of this course student will be able to do Creation and alteration of database as well as the insertion, manipulation and selection of data using the database management system tools (MySql, MSSql or Oracle)

1. CONTENTS

This course will cover Introduction to database, Database system concepts and architectures, Data modeling, Entity Relationship Model, Relational Model, Relational algebra and calculus, Structured Query Languages (SQL), File organization and retrieval, Relational database design, Transaction Management, Concurrency control and Database Security

1. COURSE OUTLINE

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| **Lectures** | **Contents** | **Details** |
| Lab 1 | Introduction | Installation of Software, Database Creation, Table Creation |
| Lab 2 | Relationships and modification | Relationships, Primary and Foreign Key Constraints, Database modification and deletion |
| Lab 3 | Insert operation | Insertion, modification and deletion of data |
| Lab 4 | Select operation | Normal select statement, select statement with conditions |
| Lab 5 | Select operation | Joining operations: Inner join, Left outer join, Right outer join, Full outer join |
| Lab 6 |  | **Lab Test** |
| Lab 7 | Select operation | Distinct, And/or operator, Order By, Select Top, LIKE operator, IN operator, BETWEEN operator, Aliases, Union/Intersect operator |
| Lab 8 | Select operation | Aggregate Functions |
| Lab 9 | View, Procedure, Trigger | View, Procedure, Trigger |
| Lab 10 |  | **Lab Final** |

1. MARKS DISTRIBUTION

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| Class Attendance | 10% |
| Performance | 25% |
| Report | 25% |
| Lab Final | 40% |
| TOTAL | 100% |

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1. REFERRED TEXTS
2. Database Systems Concepts, A. Silberschatz, H. Korth and S. Sudarshan, McGraw Hill
3. SQL in a Nutshell A Desktop Quick Reference, Pearson.