

**Welcome to**

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**IT CENTER SCHOOL OF TECHNOLOGY**



**DATABASE MANAGEMENT SYSTEMS**

**Milestone July - Dec 2024**

## **COURSE OBJECTIVE**

The objective for database management course is so that a student will be able to Understand the Fundamentals of Databases, Learn Database Models, Develop SQL Skills, apply theoretical knowledge through hands-on exercises and projects that involve designing, implementing, and managing databases and all this will be done using Mysql server. Oracle and SQL Server may also be applicable for the student knowledge as they are also tools that may be used in DBMS.

## **CAREER OPPORTUNITIES**

From the DBMS knowledge a student will be equipped for the following roles, Database Administrator, Database Developer, Data Analyst, Data Engineer and many more. Student who have learned DMBS will be able to handle responsibilities such as Installing, configuring, upgrading, administering, monitoring, and maintaining databases in an organization.

### **Week 1**

An overview of database management

Definition of a database

What is database management system and types of DBMS

USERS OF A DBMS

Importance of a database management system

### **Week 2**

#### **Database languages**

- Data Definition Language (DDL)

*Create, Alter, Drop, Rename, Comment*

- Data Manipulation Language (DML)

*Select, Insert, Update, Delete, Merge,*

- Data Control Language (DCL)

*Grant, Revoke*

- Transaction Control Language (TCL)

*Commit, Rollback*

### **Week 3**

Database management system soft wares

MySQL, Microsoft SQL Server, Oracle, IBM DB2.

INSTALLATION OF MICROSOFT SQL SERVER

### **Week 4**

Datatypes

- Numeric Data Type(BIT(size), INT(size), FLOAT(p).....)
- Date and Time Data Type( DATE, TIME(fsp), YEAR)
- String Data Types(CHAR(size), VARCHAR(size), BINARY(size), VARBINARY(size)..... )

### **Week 5 and 6**

#### **SQL**

Create a database in SQL

Create database

DROP database

ALTER DATABASE

#### **SQL TABLES**

Create table

Drop table

Delete table

Rename table

Alter table

Copy table

Constraints and foreign keys

### **Week 7**

#### **Sql operators**

- SQL Arithmetic Operators(+ - \* / %)
- SQL Bitwise Operators(& | ^)
- SQL Comparison Operators( = > < .....)
- SQL Logical Operators( ALL AND NOT OR.....)

#### **SQL FUNCTIONS**

COUNT()

AVG()

SUM()

## **Week 8**

### **SQL Statements AND QUERIES**

- **SQL STATEMENTS**

#### **SYNTAX**

SELECT column1, column2, ...

FROM table\_name;

- Retrieve a table syntax:

SELECT \*

FROM employees

#### **Syntax**

*SELECT select\_list*

*FROM source*

*WHERE condition(s)*

*GROUP BY expression*

*HAVING condition*

*ORDER BY expression*

- *SQL Comments*

#### **Single line comments:**

#### **Multi-line Comments:**

## **Week 9**

### **VIEWS**

#### **Define a view**

- Creating view (from single table, multiple tables)
- Managing Views
- Deleting View
- Updating a View
- Renaming a View

## **Week 10**

### **sub queries**

- Defining a subquery
- Type of Subqueries

Week 11

### **Stored Procedures**

Define a stored procedure

- Creating Stored Procedures
- Creating parameterized stored Procedures
- Return values from stored procedure
- Calling stored procedure from another procedure
- Stored Procedure With one and Multiple Parameters

Week 12

### **Code User Defined Functions**

- Creating a User Defined Database
- Renaming a User- Defined Database
- Dropping a User- Defined Database

**Week 13**

Security in database management

**Week 14**

Design and implement a database project based on real-world scenarios

**Week 15**

Project

**GOOD LUCK!!!**

