COURSE TITLE	Database Management System - I
COURSE CODE	CC-110
COURSE CREDIT	3
Session Per Week	4
Total Teaching Hours	40 HOURS

AIM

This course introduces students to information of data, working of related data to gain knowledge. Students also will design the real life application

LEARNING OUTCOMES

On the completion of the course students will:
1) To understand the concept, role and importance of Database.
2) To recognize the elements of Database for real applications.
3) To identify the key relationship between the Database components.
4) To comprehend the type of relational model to apply according to the scenery of applications.
5) To be aware of the real functions of Database Management Software.
6) To normalize the Tables to remove the anomaly existing in the Database.
7) To deal with every tiny elements of the Database.

DETAIL SYLLABUS

UNIT	TOPIC / SUB TOPIC	TEACHING HOURS
	Database System and Data Models	10
	Data and Information Data Vs. Information	1
	Database o Introduction of the Database and the DBMS o Role, Advantage and Disadvantages of DBMS o Types of Database	3
1	**Distributed Database Management Systems** o Evolution of DDBMS o Distributed Processing and Distributed Database o DDBMS Advantages and Disadvantages o Characteristics of DDBMS o Components of DDBMS	2
	Database Systems o The Database System Environment o DBMS Functions	3

	Data Model Basic Building Block o The Relational Model o The E-R Model	1
2	**The Relational Database Model**	10
	• A logical view of Data o Tables and Their characteristics	1
	Keys	1
	Integrity Rules	1
	Concept of Functional Dependency	1
	Relational Set Operators	2
	The Data Dictionary and The System Catalog	1
	• Relationship within the Relational Database o The 1 : M Relationship o The 1 : 1 Relationship o The M : N Relationship	3
	Data Redundancy Revisited	
3	**Entity Relationship Modeling**	10
	• The Entity Relationship Model o Entities o Attributes o Relationships o Connectivity and Cardinality o Existence Dependence o Relationship Strength o Weak Entities o Relationship Participation o Relationship Degree o Recursive Relationship o Composite Entities	7
	Developing an ER diagram (Using Crow's-foot Model)	3
4	**Normalization of Database Tables**	10
	The need of Normalization	2
	• The Normalization process o Conversion to First normal form o Conversion to Second normal form o Conversion to Third normal form	8

TEXT BOOK/S:
Database System Concepts (First Edition: 2008) Publisher: Cengage Learning By Peter Rob and Carlos Coronel Chap-1(1.1, 1.2, 1.6), chap-2(2.5(2.5.3, 2.5.4)), Chap-3(3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7), Chap-4(4.1, 4.2), chap-5(5.2, 5.3)
REFERENCE BOOKS:
 1. Introduction to Database Management Systems (First Edition 2006) Publisher: Tata McGraw-Hill By ISRD Group 2. An Introduction to Database Systems (Eighth Edition 2006) Publisher : Pearson By C. J. Date, A. Kannan & S. Swamynathan 3. An Introduction to Database Systems Publisher: Pearson By: ITL Education Solutions Limited.

COURSE TITLE	Database Practical
COURSE CODE	CC-114
COURSE CREDIT	3
Session Per Week	3
Total Teaching Hours	40 HOURS

AIM

The course is aimed to make students acquainted with the features of database tools. It aims to
give emphasis on basic features of MySQL by illustrating some basic queries using sample problems.

LEARNING OUTCOMES

On the completion of the course students will:
1) Gain the knowledge of Open Source Database.
2) Develop skills for effective use of the MySQL
3) Familiar with basic as well as advance features of MySQL
4) Understand how to use the database in day to day life.

DETAIL SYLLABUS

UNIT	TOPIC / SUB TOPIC	TEACHING HOURS
	Introducing the MySQL Relational Database Management System	10
	• Database Management System o The MySQL RDBMS o The Open Source Movement	2
1	• The SQL Framework o What is SQL? o Creating an SQL Statement o Introduction to Queries -DDL & DML --Create --Insert --Select --Update --Delete	6
	• Installing and Verifying MySQL on Windows	2

2	**Working with MySQL , Managing Database and Data types**	**10**
	• Working with MySQL o File Storage for a Windows Installation o The MySQL Database o MySQL Interactive Mode - Commands: Clear, Exit, Quit, Help, Prompt, Status, Use o Assigning Account Passwords	5
	• Managing Databases o Creating Database o Using Database o Deleting Database	2
	• Data types in MySQL o Numeric Data Types -Integer and Fractional o String Data types o Date/Time Data Types	3
3	**Managing Tables and Manipulating Data In MySQL**	**10**
	• Managing Tables o Creating Tables o Defining Primary key o Introduction to different types of relationships in RDBMS -One-to-one -One-to-many -Many-to-many o Defining Foreign key and establishing relationship o Deleting Tables	6
	• Manipulating Data In MySQL o Inserting data into database -Using INSERT statement to add data. o Updating data into database -Using UPDATE statement to update a single table -Implement WHERE clause in UPDATE statement	4
	Manipulating Data In MySQL and Sample Project	**10**
	• Manipulating Data In MySQL o Retrieving data into MySQL Database -Using SELECT statement to display the values. -Using WHERE clause in SELECT statement o Deleting data into MySQL Database -Using DELETE statement from a single table -Using WHERE clause in DELETE statement	4

| 4 | • **Sample Project**
 Create the following database and establish relationship:- Payroll
1) Payroll-DB
- Department (Deptno, Dept_Name, Location)
- Employee_Master (Empno, Empname, Designation, DOB, DOJ, Gender, Salary and Deptno)
- Employee_Detail (Emp_detail_id, Empno, Salary_Date, Basic, DA, HRA, TA, PF, TAX)

2) Inventory-DB
- Customer (Cust_no, Cust_name, City)
- Item (Item_no, Name, Price, Stock, Mfg_date)
- Order_Master (Order_no, Cust_no, Order_Date, Vendor_Name)
- Order_Details (Order_no, Item_no, Quantity | 6 |

Note:

Practicals and examination should be conducted using MySQL Database and MySQL Workbench

Following type of sample application can be asked in the final examination:

1) Generate database INVENTORY and create the following tables in it. Also create appropriate relationship among these tables.
• Customer (cid, c_name, e_mail, city)
• Product (pid, p_name, desc, rate)
• Order(cid, pid, oid, odate, qty)

Queries:

a. Insert the following data in the table:

Customer:	c_id	c_name	e_mail	city	
	1	Neha	neha@gmail.com	A'bad	
	2	Hemit	hem@ymail.com	Baroda	
	3	Apoorva	apoorva@gmail.com	A'bad	
	4	Abhishek	abhi@hotmail.com	Surat	

Product:	p_id	p_name	Desc	Rate	
	1	Pen	Cello Pinpoint	15	
	2	Pencil	Apsara Black	5	
	3	Eraser	Non-Dust	7	
	4	Refill	Cello	4	

Order:	O_id	c_id	p_id	o_date	p_qty	
	1	1	1	5/3/2017	3	
	2	1	1	6/3/2017	6	
	3	2	3	3/3/2017	7	
	4	3	4	1/3/2017	2	

b. Display the list of the customers where the city is "Ahmedabad".
c. Update the Rate of product to 11 where the pro_id is 4.
d. Delete the record with order_id 4.

TEXT BOOK/S:

Beginning MySQL
Publisher : Wiley Publishing, Inc
Robert Sheldon, Geoff Moes

TEXT BOOK/S:

Learning MySQL
Publisher: O`REILLY
Seyed M.M. "Saied" Tahaghoghi and Hugh E. Williams