**TilakMaharashtraUniversity**

**Bachelor of Computer Applications**

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| Semester | Third | | Teaching Hrs = 45 | |
| Subject Code | BCA23–302 | |
| Subject Name | Database Management System(DBMS) | |
| Examination Scheme | | | | Credits |
| External Exam | | Internal Exam | Total Marks |
| 60 | | 40 | 100 | 3 |
| Course Outcomes (COs)  After learning this course student will be able to,   * Gain a good understanding of the architecture and functioning of database management systems as well as associated tools and techniques, * Understand the use of structured query language and its syntax, transactions, database recovery and techniques for query optimization. * Develop learning of management of data in the system * Acquire a good understanding of database systems concepts and to be in a position to use and design databases for different applications. | | | | |

**BCA – 341-20 Database Management System (DBMS)**

**1. Objectives** (4 Hr)

Storage devices characters

File Organization

Sequential Files, Indexing and methods of indexing, Hash files

**2. Introduction to Database Systems** (5 Hr)

Objective

Introduction to DBMS

What is Data, Database system, DBMS?

Single and Multi-user systems

Advantages and drawbacks of DBMS

Architecture of DBMS

Users of DBMS

Roll of Database Administrator

Components of DBMS

Types of DBMS - Hierarchical, Network, Relational

Why RDBMS?Features of RDBMS

Attributes, tuples & tables, codd’s rules

**3: Entity Relationship Model** (5 Hr)

Objectives

Entity Relationship Model

Entity set

Relationship set

Attributes and values.

Weak and Strong Entity

Keys in DBMS

Conventions for drawing ERD

Abstraction

Generalization

**4: DBMS Concepts** (5 Hr)

Objectives

ACID Properties

Concurrency Control

Recovery Mechanisms

Views And Security

Integrity Constraints

Data Security

**5: Relational Database Design** (5 Hr)

Objectives

Need For Proper Database

Undesirable Properties Of Bad Database Design

Functional Dependencies

Normalization Using FDS - 1 NF, 2 NF, 3 NF, BCNF

Properties of Decomposition - Loss less Join, Dependency Preserving

**6: SQL Relational Database Design** (5 Hr)

Introduction

DDL

DML

DCL

Simple Queries

**7: Security** (4 Hr)

Objectives

Granting access to users

Extending and restricting privileges

Using views of security

**8:Transaction Processing** (4 Hr)

Objectives

Transaction, transaction processing

Properties of Transaction

Schedules

Serializing and its need

**9 :Backup and Recovery** (2Hr)

Types of failure and storage systems

Need for backup and recovery

**10: Concurrency Control & Recovery Techniques** (4 Hr)

Concurrency problems

Concurrency control mechanisms

Deadlocks

Deadlocks handling detection and prevention

**11: Introduction To Data Warehousing and Data Mining** (2Hr)

Objectives

Data Warehousing & Data Mining

**Reference Books:**

1) Introduction to Database Systems - C. J. Date

2) Database System Concept - Korth

3) Data Management Systems - Alexis Leon, Mathew Leon

4) Principles of Database Management - James Martin

5) Fundamentals of Database Systems Navathe