INSTITUTE OF AERONAUTICAL ENGINEERING
(Autonomous)
Dundigal - 500 043, Hyderabad, Telangana

COURSE CONTENT

DATABASE MANGEMENT SYSTEMS								
III Semester: MBA								
Course Code	**Category**	**Hours / Week**			**Credits**	**Maximum Marks**		
CMBD39	**Elective**	**L**	**T**	**P**	**C**	**CIA**	**SEE**	**Total**
		4	**-**	**-**	**4**	40	60	100
Contact Classes: 45	**Tutorial Classes: Nil**	**Practical Classes: Nil**				**Total Classes: 45**		
Prerequisite: Management of Information Systems								

I. COURSE OVERVIEW:

This course imparts knowledge and tailored for MBA students provides a comprehensive understanding of the fundamental concepts, principles, and practical applications of managing and utilizing databases in modern business environments. In today's data-driven world, the ability to effectively manage, retrieve, and analyze data is crucial for informed decision-making and efficient business operations. This course is designed to equip MBA students with the knowledge and skills needed to leverage databases for strategic advantage and organizational success.

II. COURSES OBJECTIVES:

The students will try to learn:

I. the role of database management system in an organization and learn the database concepts.
II. How to design databases using data modeling and data normalization techniques.
III. How to construct database queries using relational algebra and calculus.
IV. The concept of a database transaction and related database facilities.
V. How to evaluate a set of queries in query processing.

III. COURSE OUTCOMES:

At the end of the course students should be able to:

CO1 Recall fundamental concepts of database management systems, including data models, schemas, and normalization techniques.
CO2 Identify basic SQL syntax for querying and manipulating databases.
CO3 Summarize the ethical and legal considerations associated with database management and data privacy.
CO4 Utilize SQL queries to extract specific information from a database.
Implement basic security measures to safeguard database integrity.
CO5 Evaluate the trade-offs between different database architectures for specific organizational needs.
CO6 Analyze a given database design for potential inefficiencies and suggest improvements.

IV. COURSE CONTENT:

MODULE – I: CONCEPTUAL MODELING (10)
Introduction to file and database systems: Database system structure, data models, introduction to network and hierarchical models, ER model, relational model.

MODULE - II: RELATIONAL APPROACH (08)
Relational algebra and calculus: Relational algebra, selection and projection, set operations, renaming, joins, division, examples of algebra queries, relational calculus, tuple relational calculus, domain relational calculus, expressive power of algebra and calculus.

MODULE - III: BASIC SQL QUERY (10)
SQL data definition; Queries in SQL: updates, views, integrity and security, relational database design.
Functional dependencies and normalization for relational databases up to five normal forms.

MODULE - IV: TRANSACTION MANAGEMENT (09)
Transaction processing: Introduction, need for concurrency control, desirable properties of transaction, schedule and recoverability, serializability and schedules; Concurrency control: Types of locks, two phases of locking, deadlock, time stamp based concurrency control, recovery techniques, concepts, immediate update, deferred update, shadow paging.

MODULE - V: DATA STORAGE AND QUERY PROCESSING (08)
Record storage and primary file organization, secondary storage devices, operations on files, heap file, sorted files, hashing techniques, and index structures for files; Different types of indexes, B tree, B+ tree, query processing.

V. TEXT BOOKS:
1. Jeff Hoffer, V.Ramesh, Heikki Topi, "Modern Database Management", Pearson, August, 2019.
2. Wilfried Lemahieu, Seppe Vanden Broucke, Bart Baesens, "Principles of Database Management", Cambridge Univeristy Press, July 2018.
3. Carlos Coronel, Steven Morris, "Database Systems: Design, Implementation, & Management", 13th Edition, Cengage Learning, Jan, 2018.
4. Mukesh Changra Negi, "Fundamental of Database Management System", BPB, 1st Edition, Jan, 2019.
5. R.S.Negi, "Database Management System", Astha Publishers & Distributors , Jan, 2014
6. Abraham Silberschatz, Henry F. Korth, S. Sudarshan, "Database System Concepts", McGraw Hill, 4th Edition, 2002.

VI. REFERENCE BOOKS:
1. Ramez Elmasri, Shamkant B.Navathe, "Fundamental Database Systems", Pearson Education, 3rd Edition, 2003.
2. Raghu Ramakrishnan, "Database Management System", Tata McGraw-Hill Publishing Company,3rd Edition, 2003.
3. Hector Garcia Molina, Jeffrey D. Ullman, Jennifer Widom, "Database System Implementation", Pearson Education, United States, 1st Edition, 2000.
4. Peter Rob, Corlos Coronel, "Database System, Design, Implementation and Management", Thompson Learning Course Technology, 5th Edition, 2003.

VII. Web References:
1. https://www.youtube.com/results?search_query=DBMS+onluine+classes
2. http://www.w3schools.in/dbms/
3. http://beginnersbook.com/2015/04/dbms-tutorial/

VIII. E-Text Books:
1. http://www.e-booksdirectory.com/details.php?ebook=10166
2. http://www.e-booksdirectory.com/details.php?ebook=7400re