Course Type	Course Code	Name of Course	L	T	P	Credit
DC	NMCC531	DBMS for Data Analytics	3	1	0	4

Course Objective
• To provide knowledge of DBMS for Data Analytics.
Learning Outcomes
• They will be able to design data bases used for Data Analytics.

Unit No.	Topics to be Covered	Contact Hours	Learning Outcome
1	Object oriented model: Nested relations, modelling nested relations as object model, extension of SQL, object definition and query language (ODL, OQL), object relational database model, storage and access methods. Active databases, Advanced trigger structures, SQL extensions.	10L+3T	At the end of this unit, students will be able to write complex data querries in SQL on relational database models, set triggers, and learn about data storage ance access methods.
2	Security and Integrity: Discretionary and mandatory access control; Facilities in SQL, access control models for RDBMS and OODBMS. Distributed Database: Basic Structure, fragmentation algorithms, tradeoffs for replication, query processing, recovery and concurrency control; Multidatabase systems; Design of Web Databases.	10L+3T	At the end of this unit, students will be able to write their first web application based on a distributed database.
3	Big Data Analytics: Big Data Storage Systems, MapReduce Paradigm, Beyond MapReduce: Algebraic Operations, Streaming Data, Graph Databases	4L+2T	At the end of this unit, students will be able to understand the concepts of big data analytics.
4	Data Mining: Association Rule mining, Clustering and classification. Data Warehousing, Online Analytical Processing and data cube, Basic structure of a data warehouse; Extension of ER Model, materialistic view creation, Deductive databases, recursive query construction, logical database design and data log.	11L+4T	At the end of this unit, students will be able to apply data mining techniques, design data warehouses and OLAP systems, and construct logical and deductive databases with recursive queries.
5	One or more of the following topics: (i) Temporal database, (ii) Multimedia database, (iii) Text retrieval and mining, (iv) Web mining, and (v) Any topic of current interest.	7L+2T	At the end of this unit, students will be well- versed with the topics that are selected for teaching.
Total		**42L+14T**	

Text Books:

1. H. F. Korth, A. Silberschatz and S. Sudarshan, Database System Concepts, 7th Edition, McGraw Hill, 2020.
2. Raghu Ramakrishnan and Johannes Gehrke, Database Management Systems, 3rd Edition, McGraw-Hill, 2003.

Reference Books:

1. P. O'Neil, Database: Principles, Programming, Performance, Morgan Kaufman Publishers, 1994.
2. J.D. Ullman, Principles of Database and Knowledge-Base Systems, Computer Science Press, 1988.