

Database Management System

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Database Management System	4	2	0	2	Pass in Class XII	NIL

Learning Objectives:

This course is designed to give overview and understanding of database management systems and equip them to solve business problems.

Learning Outcomes:

After completion of the course, learners will be able to:

1. Describe the concept of a database management system and will be able to compare it with the traditional file system.
2. Draw ER diagrams and will be able to check whether the database is in the first three normal forms.
3. Discuss basic structure of the database using ms access by creating tables, setting different field types and properties and by setting relationships between two or more tables.
4. Retrieve the data stored in tables using queries to provide multiple views of data.
5. Create interactive forms for data entry and create and print various reports using ms access.

Course Contents:

Unit 1: Introduction of database management system (6 hours)

Database, database system and database management system (DBMS); various types of DBMS; importance of database management system, comparison between database management system and traditional file system; advantages and limitations of DBMS; relational databases and database architecture.

Unit 2: Designing a database (6 hours)

Steps in database designing; ER Model: overview, ER-Diagram, entity: strong and weak, relationship: meaning and type; Codd's rules; attributes: meaning and types; Relational Schemas, relational mapping from ER- Diagram; concept of keys: super key, candidate key, primary key, composite key, foreign key; integrity rules, first three forms of Normalization (1NF, 2NF, and 3NF).

Unit 3: Creating tables and setting relationship (7 hours)

Using MS Access: creating tables using design view, naming fields, setting data type, setting field properties, setting primary/composite key, setting validation rule and validation text; setting relationship between two or more tables, enforcing referential integrity constraint.

Unit 4: Retrieving data using queries, Creating forms and reports (11 hours)

Working with queries: working with query design, adding tables, adding fields, sorting records, setting field criteria (both text based and number based), summarizing the records in a query. Creating Forms: working with form wizard and design view, sections of a form, assigning form properties, using form templates and auto forms. Creating Reports: working with report wizard and report design, inserting a chart into report using chart wizard, modifying and printing reports.

Note: The General Purpose Software referred in this course will be notified by the University Departments every three years. If the specific features, referred to in the detailed course above, is not available in that software, to that extent it will be deemed to have been modified.

Practice Exercises (60 Hours):

The learners are required to:

1. Using the ER diagram, the learner is required to screen out the entities, attributes and relationships for a college set up where a teacher teaches subjects to its students and the teacher reports to the principal of the college.
2. The nearby general store wants to maintain a database for its customers. Some of his customers take delivery at home. The learner shall use MS-Access to prepare the customer table, item table and transaction table for the shopkeeper. Set the primary key in each table. Form the relationship among the attributes using referential integrity constraint.
3. An organisation maintains the database of its employee details, the salary information and the leave record using MS-Access. The learner shall design the query for the organisation who wants to know the names of their senior employees, their basic pay and number of leaves they have taken.
4. The college admits a student and creates tables to store the student details and their attendance using MS-Access. The learner shall prepare the different types of forms to insert the records in the tables already created.
5. The college maintains the fees records of the students along with the details of students using MS-Access. The learner shall prepare a report to show names of students with the payment of fee and the list of the defaulters.

Suggestive Readings:

- Elmasari, R. & Navathe, S.B. (2016) "Fundamentals of Database Systems", Pearson Education, USA
- Jain, H. C. & Tiwari, H. N. (2021) "Computer Applications in Business" Taxmann, Delhi.
- Madan, S. (2020) "Computer Applications in Business" Scholar Tech Press, Delhi.
- Mathur, S. & Jain, P. (2022) "Computer Applications in Business" Galgotia Publishing Company, Delhi.
- Sharma, S.K. & Bansal, M. (2022) "Computer Applications in Business" Taxmann, Delhi.

Note: Suggested readings will be updated by the Department of Commerce and uploaded on Department's website