

Department of Data Science
Revised Syllabus of Diploma Courses (UG)

Preamble:

A data administrator is a crucial role in organizations that deal with significant amounts of data. Their primary responsibility is to manage and oversee the organization's data assets, ensuring their integrity, security, and availability. They are responsible for the design, implementation, and maintenance of databases, ensuring data is organized efficiently and securely. Data administrators implement security measures to safeguard data against unauthorized access, breaches, and potential data loss.

Program Objectives of the Course:

Introduce students to the fundamental concepts of data management, including data types, data models, data architecture, and data lifecycle.

Teach students the principles of designing and implementing databases, covering topics such as database schema design, normalization, indexing, and SQL queries.

Program Outcomes:

After successful completion of this Course, students can able to:

1. Demonstrate a comprehensive understanding of data management concepts, including data types, data models, data architecture, and data lifecycle.
3. Utilize data profiling and cleansing techniques to maintain high-quality data and ensure data integrity.

Diploma Course in Database Administrator

1. Title: Database Administrator
2. Year of Implementation: 2023
3. Duration: One Year
4. Pattern: Annual
5. Medium of Instruction: English
6. Contact hours: 7 hours/week for I Year, 8 hours/week for II and III Year.
8. Structure of Course:

For UG

Year	Semester	Paper No.	Paper Code	Contact Hours	Credits (1Credid =12H)	Marks		
						Semester/ Annual Exam	Internal	Total
1	I	PT I	DDSET 101	30	2.5	50	15	65
	II	PT II	DDSET 202	30	2.5	50	10	60
		PL I	DDSEL 101	120	5	100	25	125
		PP I	DDSEP 101	30	2.5	50	-	50
	Total			210	12.5	250	50	300
2	III	PT III	DDSET 301	30	2.5	50	15	65
	IV	PT IV	DDSET 402	30	2.5	50	10	60
		PL II	DDSEL 202	120	5	100	25	125
		PP II	DDSEP 202	60	5	100	-	100
	Total			240	15	300	50	350
3	V	PT V	DDSET 501	30	2.5	50	15	65
	VI	PT VI	DDSET 502	30	2.5	50	10	60
		PL III	DDSEL 303	120	5	100	25	125
		PP III	DDSEP 303	60	5	100	-	100
	Industrial/Incubati on Training			10	1	-	-	-
	Total			250	16	300	50	350
Total			700	43.2	850	150	1000	

Total No. of Papers: Theory: 6, Practical: 3, Project: 3

Number of Lectures per week: 07

Theory: Semester, Practical and Project: Annual

Diploma Courses: 2023-2024

PT: Paper Theory, PL: Paper Lab, PP: Paper Project, D: Diploma, * : Name of Subject, T : Theory,

L: Lab, P: Project

For PG

Year	Semester	Paper No.	Paper Code	Contact Hours	Credits (1Credid =12H)	Marks		
						Semester/ Annual Exam	Internal	Total
I	I	PT I	D* T 101	30	2.5	50	25	75
	II	PT II	D* T 202	30	2.5	50	25	75
		PL I	D* L101	120	5	100	50	150
		PP I	D* P101	60	5	100	-	100
	Total			240	15	300	100	400
II	III	PT II	D*T 301	30	2.5	50	25	75
	VI	PT IV	D*T 404	30	2.5	50	25	75
		PL II	D*L 202	120	5	100	50	150
		PP II	D*P 202	60	5	100	-	100
	Industrial/Incubation Training			20	2	-	-	-
	Total			260	17	300	100	400
Total				500	32	600	200	800

Total No. of Papers: Theory:6, Practical:3, Project:3

Number of Lectures per week: 08

Theory: Semester, Practical and Project: Annual

PT: Paper Theory, PL: Paper Lab, PP: Paper Project, AD: Advance Diploma, * : Name of Subject, T : Theory, L: Lab, P: Project

Keep only one table for UG or PG syllabus

**DDSET 101: Database Administrator
(Contact Hrs: 30 Credits: 2.5)**

Course Objectives: Students should be able to...

1. Introduction to Database Concepts: Provide an understanding of fundamental database concepts, such as tables, records, fields, primary keys, relationships, and normalization.
2. Creating and Managing Databases: Teach participants how to create and manage Access databases, including setting up tables and defining field properties.
3. Designing Effective Tables: Help participants design tables with appropriate data types, field sizes, and validation rules to ensure data integrity.

Unit I: Introduction to Microsoft Access (10)

Overview of Microsoft Access and its purpose. Exploring the Access interface and navigation, Creating and managing Access databases. Understanding tables, queries, forms, and reports.

Unit II: Working with Access Tables (8)

Designing and creating tables. Setting field properties (data types, validation rules, etc.). Importing and exporting data to/from Access. Using relationships to link tables.

Course Outcomes: Students will be able to...

1. Database Design and Creation: Participants will be able to design and create relational databases in Microsoft Access, including defining tables, establishing relationships, and setting up primary keys.
2. Data Entry and Management: Learners will gain proficiency in entering, editing, and managing data within Access databases, ensuring data accuracy and consistency.
3. Querying and Data Retrieval: Students will be able to create and run queries to retrieve specific information from databases, apply filtering criteria, and sort data for analysis.
4. Creating User-Friendly Forms: Participants will have the skills to design user-friendly forms for data entry and interaction with the database, improving the user experience.
5. Report Generation and Customization: Learners will be capable of generating professional reports, adding groupings, calculations, and customizing the layout to present data effectively.

Reference Books:

1. Microsoft Access 2013 Plain & Simple Prentice Hall India Learning Private Limited 1 January 2013
2. Ramesh Bangia (Author) Learning Microsoft Access 2010 Khanna Book Publishing Company 1 January 2011
3. Tech Demystified (Author) MICROSOFT ACCESS & EXCEL FOR BEGINNERS & POWER USERS: The Concise Microsoft Access & Excel 2021 A-Z Mastery 7 June 2021
4. Michelle Halsey (Author) Learn Microsoft Access 2016 2 October 2020

5. Mason Owen (Author) Microsoft Access 365 for Beginners and Advanced Users 2022: The Complete Mastery User Guide for Managing Data and Build Resourceful Database 1 November 2022

(Contact Hrs: 30 Credits: 2.5)

DCSET 102: Database Administrator

Course Objectives: Students should be able to...

- 1.Introduction to Database Concepts: Provide an understanding of fundamental database concepts, such as tables, records, fields, primary keys, relationships, and normalization.
- 2.Creating and Managing Databases: Teach participants how to create and manage Access databases, including setting up tables and defining field properties.
- 3.Designing Effective Tables: Help participants design tables with appropriate data types, field sizes, and validation rules to ensure data integrity.

Unit III: Access Queries (9)

Creating and running queries to extract and manipulate data, using criteria to filter query results, understanding different query types (select, action, parameter, etc.). Building calculated fields in queries.

Unit IV: Access Forms and Reports

Designing and customizing forms for data entry and navigation. Adding form controls (textboxes, buttons, combo boxes, etc.). Implementing data validation on forms. Creating sub forms and tab controls. Creating and customizing reports to present data in a structured format. Adding grouping, sorting, and totals to reports. Implementing report controls (headers, footers, page numbers, etc.), Printing and exporting reports.

Course Outcomes: Students will be able to...

- 1.Database Design and Creation: Participants will be able to design and create relational databases in Microsoft Access, including defining tables, establishing relationships, and setting up primary keys.
- 2.Data Entry and Management: Learners will gain proficiency in entering, editing, and managing data within Access databases, ensuring data accuracy and consistency.
- 3.Querying and Data Retrieval: Students will be able to create and run queries to retrieve specific information from databases, apply filtering criteria, and sort data for analysis.
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**DCSEL101: (Practical):
(Contact Hrs: 120 Credits: 05)**

Course Objectives: Students should be able to...

1. Introduction to Database Concepts: Provide an understanding of fundamental database concepts, such as tables, records, fields, primary keys, relationships, and normalization.
2. Creating and Managing Databases: Teach participants how to create and manage Access databases, including setting up tables and defining field properties.
3. Designing Effective Tables: Help participants design tables with appropriate data types, field sizes, and validation rules to ensure data integrity.

List of Practical's (30)

1. Creating a Database: Open Microsoft Access and create a new blank database. Choose a suitable location to save the database file.
2. Designing Tables: In the new database, create tables to store different types of data. Define fields (columns) for each table, specifying data types, primary keys, and any necessary constraints.
3. Importing Data: You can import data from various sources such as Excel spreadsheets, CSV files, or other databases into Access tables.
4. Building Forms: Create user-friendly data entry forms to allow users to input data into the tables easily. Access provides a form designer to customize the layout and appearance of forms.
5. Creating Queries: Use the query builder to create SQL queries to retrieve specific data from tables. Queries can include filtering, sorting, and joining tables to fetch the required information.
6. Generating Reports: Design and generate professional-looking reports based on your tables or queries. Reports can be customized with headers, footers, grouping, and calculations.

7.Implementing Relationships: Set up relationships between tables to enforce referential integrity and optimize data retrieval.

8.Adding Validation Rules: Apply data validation rules to ensure that only valid data is entered into the tables, helping to maintain data integrity.

Course Outcomes: Students will be able to...

1.Database Design and Creation: Participants will be able to design and create relational databases in Microsoft Access, including defining tables, establishing relationships, and setting up primary keys.

2.Data Entry and Management: Learners will gain proficiency in entering, editing, and managing data within Access databases, ensuring data accuracy and consistency.

3.Querying and Data Retrieval: Students will be able to create and run queries to retrieve specific information from databases, apply filtering criteria, and sort data for analysis.

4.Creating User-Friendly Forms: Participants will have the skills to design user-friendly forms for data entry and interaction with the database, improving the user experience.

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BOS Sub-Committee

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2.Mr. Vijayendra Shinde