

Course 105: Data Manipulation and Analysis (DMA)

<p>Course Content:</p>	<p>UNIT-1: Concepts of worksheet: (Max. Weightage: 15%)</p> <p>1.1 Fundamentals of Worksheet:</p> <p>1.1.1 Concepts of workbook, adding worksheet, cell address, formula bar, column, rows, cells, Insert, delete, format cells , cell size (row-height, column weight), rename sheet, protect sheet, lock cell.</p> <p>1.1.2 Cut, copy, paste, paste special, format painter, font size, font face, fill color, font color, font alignment</p> <p>1.2 Alignment, indent, Number format, percent style, coma style, increase/decrease decimal</p> <p>1.2.1 Insert picture, shapes</p> <p>1.2.2 Insert Textbox, Header & Footer, Symbols</p> <p>1.2.3 Save, save as, save file as csv, spell check, protect sheet and Workbook, Linking spread sheets.</p> <p>1.2.4 Print, Quick print, Print preview</p> <p>1.2.5 Split, Hide and freeze panes in worksheet.</p>
	<p>UNIT-2: Formulas, Chart and Data: (Max. Weightage: 15%)</p> <p>2.1 Charts :</p> <p>2.1.1 Creating 2D and 3D charts (Columns, Line, Pie, Bar, Scatter)</p> <p>2.1.2 Difference among columns, Line and bar charts.</p> <p>2.2 Formulas:</p> <p>2.2.1 sum, average, count, max, min, sumif, pmt, stddev</p> <p>2.2.2 Logical (if, AND, OR, NOT, TRUE, FALSE)</p> <p>2.2.3 Date and Day function : Date, day, time, now, Hour, Minute, Second, Month, Days360, weekday</p> <p>2.3 Data :</p> <p>2.3.1 Sort Data, Filter Data</p> <p>2.3.2 Text to columns, Remove Duplication</p> <p>2.3.3 Consolidated Data (sum, count, max, min, average)</p>
	<p>UNIT-3: Concepts of Database: (Max. Weightage: 25%)</p> <p>3.1 Database characteristics:</p> <p>3.1.1 Data Independence (Logical and Physical)</p> <p>3.1.2 Components of Database (User, Application , DBMS, Database)</p> <p>3.1.3 Database Architecture (1-tier, 2-tier, 3-tier)</p> <p>3.1.3.1 Comparison, advantages and disadvantages.</p>



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3.2 Database Models (Hierarchical, Network, E/R, Relational)

3.2.1 E/R model : Entity, Relationship, Attribute

3.2.2 E/R Diagram : One to one, one to many , many to one, many to many

3.2.3 Strong entity, weak entity

3.2.4 key attribute, derived attribute, Multi-valued attribute

3.3 Types of keys :

3.3.1 Super key, candidate key, Primary key, Composite key, Foreign key, Unique key.

UNIT-4: Normalization and Concepts of SQL: (Max. Weightage: 25%)

4.1 Why normalization (Insertion, Updating, Deletion anomalies)

4.2 Normalization Rules:

4.2.1 Concepts of Dependency, Transitive Dependency

4.2.2 Armstrong Axioms

4.2.3 1st Normal Form, 2nd Normal Form, 3rd Normal Form, B.C.N.F.

4.3 Concepts of Structure Query Language (SQL)

4.3.1 SQL datatypes : int, float, double, char, varchar, number, varchar2, Text, date

4.4 DDL Statements :

4.4.1 Create , Drop, Truncate, Rename, Alter

4.5 DML and DQL(Data Query Language) Statements :

4.5.1 Insert, Update, Delete

4.5.2 select

UNIT-5: Queries (Single Table only) (Max. Weightage: 20%)

5.1 Using where clause and operators with where clause:

5.1.1 In, between , like, not in, =, !=, >, <, >=, <=, wildcard operators

5.1.2 Order by, Group by, Distinct

5.1.3 AND, OR operators, Exists and not Exists

5.1.4 Use of Alias

5.2 Constraints (Table level and Attribute Level)

5.2.1 NOT NULL, CHECK, DEFAULT

5.2.2 UNIQUE, Primary Key, Foreign Key

5.2.3 On Delete Cascade

5.3 SQL Functions :

5.3.1 Aggregate Functions: avg(), max(), min(), sum(), count(), first(), last().

5.3.2 Scalar Functions: ucase(), lcase(), round(), mid().

5.4 Creating sequence

5.5 Views :

5.5.1 Creating simple view, updating view, dropping view.

5.5.2 Difference between View and Table.