

GANPAT UNIVERSITY									
FACULTY OF ENGINEERING & TECHNOLOGY									
Programme	Diploma Engineering				Branch	Computer Engineering			
Semester	III				Version	1.0.0.0			
Effective from Academic Year	2018-19				Effective for the batch Admitted in	June 2018			
Subject code	1CE2304		Subject Name	Database Management System					
Teaching scheme					Examination scheme (Marks)				
(Per week)	Lecture(DT)		Practical(Lab.)		Total	CE	SEE	Total	
	L	TU	P	TW					
Credit	3	0	1	0	4	Theory	40	60	100
Hours	3	0	2	0	5	Practical	30	20	50

Pre-requisites:
Basic knowledge of Computer

Course Learning Outcomes:
<p>The course content should be taught and implemented with an aim to develop different skills leading to the achievement of the following competencies and course learning outcomes:</p> <p>T1.To understands the different issues involved in the design and implementation of a database system. T2.To understand the physical and logical database designs, database modelling, relational, hierarchical, and network models T3.To implement and learn use of database manipulation language to query, update, and manage a database T4.To develops database different operation using relational algebra. T5.To performs various operations on SQL. T6.To constructs the ER diagram.</p> <p>The practical should be carried out in such a manner that students are able to acquire different learning outcomes in cognitive, psychomotor and affective domain to demonstrate course learning outcomes.</p>

Course Content				
Name of UNIT	Unit Content	Unit Learning Outcomes	Marks	Hrs
UNIT 1 Introduction to Database System	1.1. Data, Information, Data Item or Fields, Records, Files, Metadata, System Catalog, Data, Warehouse, Data dictionary and it's components 1.2. DA,DBA,Functions and Responsibilities of DBAs, 1.3. Advantage and Disadvantages of File-oriented system, Advantage and disadvantages of DBMS, File oriented System versus database system	1.1. Describe the terms: Data, Information, Records, Fields, Metadata, Data warehouse, Data dictionary 1.2. Differentiate between DA and DBA 1.3. Differentiate File oriented approach and Database approach	8	7
UNIT 2 Database System	2.1. Schemas, Sub-schemas, and Instances 2.2. Three-level ANSI SPARC	2.1. Classify schema, sub-schema and instances 2.2. To develop Understanding	10	7

Architecture	<p>Database Architecture: Internal Level, Conceptual Level, External Level</p> <p>2.3. Data Independence: Physical Data Independence, Logical Data Independence</p> <p>Mappings: Conceptual / Internal Mapping, External / Conceptual Mapping</p> <p>2.4. Structure Components, and Functions of DBMS: Structure of DBMS</p> <p>2.5. Data Models: Record-based Data Models, Object based Data Models, Physical Data Models, Hierarchical Data Model, Network Data Model, Relation Data Model, Entity –Relationship (E-R) Data Model, Object – oriented Data Model, Comparison between Data Models;</p> <p>2.6. Types of Database System: Centralized Database System, Parallel Database System, Client / Server Database System, Distributed Database System</p>	<p>about various database layers of ANSI SPARC architecture</p> <p>2.3. Describe and Differentiate between independence and Analyze mappings</p> <p>2.4. describe function and structures of DBMS</p> <p>2.5. Explain various Data Models</p> <p>2.6. Develop understanding of various types of Database systems</p>		
UNIT 3 Relational Algebra	<p>3.1. Selection Operation, Projection Operation, Joining Operation, Outer join Operation, Union Operation, Difference Operation, Intersection Operation, Cartesian Product Operation, Division Operation;</p> <p>3.2. Examples of queries in Relation Algebraic using symbols;</p> <p>3.3. Domain and Keys of relation.</p>	<p>3.1. state the information using operations of Relational Algebra</p> <p>3.2. construct different Queries using Relation Algebra</p> <p>3.3. describe and Distinguish key of relations</p>	14	7
UNIT 4 Introduction to SQL	<p>4.1. Data Types</p> <p>4.2. DDL,DML</p> <p>4.3. Operators</p> <p>4.4. SQL functions:</p> <p>4.4.1.Numeric</p> <p>4.4.2.Group</p> <p>4.4.3.String</p> <p>4.4.4.date</p> <p>4.4.5.conversion</p> <p>4.4.6.misc;</p> <p>4.5. Group by, having and Order by Clouse.</p> <p>4.6. Set operators: Union, union all, Intersect, Minus;</p>	<p>4.1. List data types in DBMS</p> <p>4.2. Perform Data Definition Language (DDL) Commands and DML Commands</p> <p>4.3. Execute various SQL operators and Functions</p> <p>4.4. Perform queries on ‘Group by’, ‘Having’ and ‘Order by’ clause</p> <p>4.5. Perform queries on ‘Group by’, ‘Having’ and ‘Order by’ clause</p> <p>4.6. Implement set operations using SQL</p>	14	13

	4.7. Joins: Simple, Equi-join, Non-equi, Self-Joins, Outer-joins; 4.8. Sub queries: Multiple, Correlated.	4.7. Implement various 'Joins' 4.8. Perform different types of queries		
UNIT 5 Database Integrity Constraints	5.1. Domain Integrity constraints: Not null, Check; 5.2. Entity Integrity constraints: 5.2.1.Unique, Primary key; 5.3. Referential integrity constraints: 5.3.1.Foreign key, 5.3.2.referenced key, 5.3.3.on delete cascade;	5.1. Implements Domain Integrity constraints: Not null, Check 5.2. Implements Entity Integrity Constrains 5.3. Implements Foreign key, referenced key, on delete cascade	8	5
UNIT 6 E R Model	6.1. Symbols, Examples 6.2. Specialisation 6.3. Generalization	6.1. Learn E-R symbols Drawing E-R models 6.2. Distinguish between 6.3. Specialisation and Generalisation	6	6

List of Practical		
No.	Unit	Name of Practical
1	4	Implements queries to perform various DDL Commands.
2	4	Implement SQL queries to perform various DML Commands.
3	4	Implement SQL queries using Date functions like add-months, months-between, round, nextday, truncate, greatest, new-time etc
4	4	Implement SQL queries using Numeric functions like abs, ceil, cos, cosh, exp, floor, power, mod, round, trunc, sqrt etc
5	4	Implement SQL queries using Character Functions like initcap, lower, upper, ltrim, rtrim, translate, replace, substring etc.
6	4	Implement SQL queries using Conversion Functions like to-char, to-date, to-number and Miscellaneous functions like uid, user, nvl, vsize etc.
7	4	Implement SQL queries using Group functions like Avg, Min, Max, Sum, Count, Decode etc.
8	4	Implement SQL queries using Group by, Having and Order by clause
9	4	Implement SQL queries using Set operators like Union, unionall, Intersect, Minus etc.
10	4	Retrieve data across various tables or same table using various Joins.
11	5	Implement different key of relations in DBMS

List of Instruments / Equipment / Trainer Board	
1	Hardware: Computer with minimum PIV processor and 1 GB Ram
2	Software: DBMS software.

List of Reference Books			
No	Title of Reference Books	Authors	Publication
1	An Introduction to Database Systems	C J Date	Pearson Education India
2	SQL/ PL-SQL	Ivan Baryons	Bpb publication
3	Database System Concepts,	Korth	Mcgraw hill publication

Link of Learning Web Resource	
1	https://www.tutorialspoint.com/dbms/
2	https://www.studytonight.com/dbms/overview-of-dbms.php
3	https://beginnersbook.com/2015/04/dbms-tutorial/