SyllabusforBachelorofComputerApplicationFirstYear

CourseTitle:DATABASE MANAGEMENTSYSTEM **CourseCode:CAUCBC203T**

Semester:II

L	T	P	C
4	0	0	4

CourseObjective:

Attheendofthecourse,thestudentswillbeableto:

- Understand the basic concepts and the applications of database systems. The course emphasizes theunderstanding of the fundamentals of relational systems including data models, database architectures,Database Design, Normalization and database manipulations.
- Masterthebasicsof SQLandconstructqueriesusingSQL.
- Familiarwiththebasicissuesoftransactionprocessingandconcurrencycontrol,

Unit	Content	Hours
1	**Introduction:**Database, Characteristics of Database Approach, File System, Database User, Database System Concept, Data Model, Schema, Instances, Three Schema Architecture, Data Independence, Database Language & Interface **Data Modeling using the Entity Relationship Model:** ER model concepts, notation for ER diagram, mapping constraints, keys, Concepts of Super Key, candidate key, primary key, Generalization, Specialization, aggregation, reduction of an ER diagrams to tables.	12
2	**Relational data Model:**Relational data model concepts, integrity constraints: entity integrity, referential integrity, Keys constraints, Domain constraints. **Relational Algebra:** Cartesian product, Union, Intersection, Difference, Select Operation, Project Operation, Composition of Select and Project operations, rename, Join operation.	8
3	**Database Design & Normalizations:** Functional Dependencies, First Normal Form, Second Normal Form, Third Normal Form, Boyce-Codd normal Form and practical problems based on these forms	7
4	**Database Implementations:**Introduction to SQL, DDL aspect of SQL, DML aspect of SQL update, insert, delete & various form of SELECT- simple, using special operators, aggregate functions, group by clause, sub query, joins, co-related sub query, union clause, exist operator, PL/SQL - cursor, stored function, stored procedure, triggers.	13
5	**Transaction & Concurrency Control:**Transaction Concepts, transaction states, Transaction properties, Serializability, Testing of Serializability. Need of Concurrency Control, Need of Recovery, Lock Based Protocol, Two Phase locking protocol**.**	10

Courseoutcomes:

- Understanddatabaseconceptsandstructuresandquerylanguage
- UnderstandtheERmodelandrelationalmodel
- Todesignandbuildasimple databasesystemanddemonstratecompetence withthefundamentaltasksinvolvedwith modelling, designing, andimplementingaDBMS.
- UnderstandFunctionalDependencyand database Design
- ApplyvariousNormalizationtechniques.
- PerformPL/SQLprogrammingusingconceptofCursorManagement,ErrorHandling,PackageandTriggers.
- Understandthetransaction processing, Concurrency Controlandrecoverymanagement.

RecommendedTextBook:

- Elmasri,Navathe,"FundamentalsOfDatabaseSystems",PearsonEducationNewDelhiIndia.
- DateCJ,"AnIntroductionToDatabaseSystem",AddisionWesley
- Korth,Silbertz,Sudarshan,"DatabaseConcepts",TataMcgraw-hillEducation(India)Pvt.Ltd.
- BipinC.Desai,"AnintroductiontoDatabaseSystems",GalgotiaPublicationPvt.Ltd.NewDelhi.
- Majumdar&Bhattacharya, "DatabaseManagementSystem",TataMcgraw-hillEducation(India)Pvt.Ltd.

RecommendedText/ReferenceBooks:

- G.K.Gupta,"DatabaseManagement System",TataMcgraw-hillEducation(India) Pvt.Ltd.
- Ramakrishnan,Gehrke, "DatabaseManagementSystem",McGrawHill(India)PvtLtd.NewDelhi.
- IIChakravarti,"AdvancedDatabaseManagementSystem",WileyDreamtechPublications

SyllabusforBachelorofComputerApplicationFirstYear

CourseTitle: **DATABASE MANAGEMENTSYSTEM LAB**

CourseCode:CAUCBC203P

Semester:II

L	T	P	C
0	0	2	1

LaboratoryObjective:

- To explain basic database concepts, applications, data models, schemas andinstances.
- Todemonstratetheuseofconstraintsandrelationalalgebraoperations.
- Describethebasicsof SQLand construct queries usingSQL.
- Toemphasizetheimportanceofnormalizationindatabases.
- TofacilitatestudentsinDatabasedesign

ListofExperiments:

Practical List:

- Create Table, Viewing and Modifying the structure of tables
- Insertion of Data into tables, Viewing data in the tables
- Delete Operations, Update Operations
- Renaming Tables, Destroying Tables
- Data Constraints, Defining integrity constraints in the alter table command
- Grouping Data from tables
- Arithmetic Operators, Logical Operators
- Range Searching, Pattern Matching
- Column Alias
- Aggregate Functions, Scalar Functions
- Date Conversion Functions, Manipulating dates in SQL
- Subqueries
- Joins
- Set Operators: Union, Intersect and Minus Clause

LaboratoryOutcome:

At theendof the coursethestudentsare ableto:

- ApplythebasicconceptsofDatabaseSystemsandApplications.
- Usethebasicsof SQLandconstruct queriesusingSQLindatabasecreationandinteraction.
- Designacommercialrelational databasesystem(Oracle,MySQL)bywritingSQLusingtheSystem.
- Analyzeand Selectstorageandrecoverytechniquesofdatabasesystem.