SUBJECT: UNDERGRADUATE COURSE CURRICULUM2024-25

PART-A: Introduction

Program: *Certificate Course*	Class: B. Sc. Semester-VI	Year:2024	Session:2024-2025

1	Course Code	CSSC-6T
2	Course Title	Relational Database Management System
3	Course Type	Discipline Specific Course (DSC)
4	Pre-requisite(if,any)	As per Government norms / Institutional scheme
5	Course Learning. Outcomes (CLO)	*After completion of this course, the students will be able to:* ➢ To Learn and practice data modelling using the Entity-Relationship and developing database designs. ➢ Apply normalization techniques to normalize the database. ➢ Design databases and normalize data and understand how queries are being processed and executed. ➢ Identify advanced database concepts and database models.
6	Credit Value	04(03 Theory & 01 Practical)
7	Total Marks	Max. Marks: 100 / Min Passing Marks: 40

PART -B: Content of the Course

Total No. of Teaching–learning - Hours– 45

Unit	Topics (Course contents)	No. of Hours
I	**Basic Concepts:** Definition of database, File system Vs Database system, Database System Applications, Advantages and Disadvantages of DBMS, View of data, Schemas and Instances, Data Abstraction, Data Independence, Database Architecture, DBA and Database Users and Administrators Database architecture	12
II	**Introduction to Data Models:** Relational model, E-R model, Object Based Data model, semi structured data model, network data model, hierarchical data model. Relational model: Structure of relational databases, concept of Keys, Relational operations (Selection, Projection, Join, Cartesian Product, Union and intersection).	11
III	**Database design and E-R model:** Design phases, Entity Relationship model, Entity sets, Relationship sets, Attribute, Attribute types, Constraints (Mapping Cardinalities-One to one, One to many, Many to one, Many to many), Participation Constraints (total, partial), Concept of functional dependencies and Normal forms (1NF, 2NF, 3NF and BCNF), E-R diagram, Strong and weak entity sets, Specialization, Generalization, Aggregation.	11
IV	**Database File Organization:** Introduction, Secondary storage devices, Serial Files, Sequential files, Index-Sequential, Direct Files Buffering of blocks, Operation on files, Heap file, Sorted File, Hashing, RAID.	11

keywords ***Data Models, Database Design, File Organization***