Course Code	CSE507
Course Name	Database System Implementation
Credits	4
Course Offered to	UG/PG
Course Description	This course covers topics relating to components of a Database System including file structures, access methods, query processing and optimization, transactions, concurrency control, recovery, distributed databases, security and some trend topics (e.g., distributed databases, spatial databases, etc.)

Pre-requisites

Pre-requisite (Mandatory)	**Pre-requisite (Desirable)**	**Pre-requiste (Other)**
CSE 102 Data Structures and Algorithms		
CSE202 Fundamentals of Database Systems		Programming skills

Post Conditions*(For suggestions on verbs please refer the second sheet)

CO1	**CO2**	**CO3**	**CO4**	**CO5**
Define, discuss and implement the common file and index structures (e.g., extendible hashing, linear hashing, B+ tree etc.). Also Apply search, insert and delete algorithms on these structures for relational data.	Define, discuss and analyse query processing strategies (e.g., nested loop join, sort merge join strategy, etc.). Also undertake cost model based analysis to analyze and evaluate the alternatives to decide on a suitable query execution strategy (e.g., choice of join strategies, index selection etc.).	Define and discuss basic terminology of transactions and concurrency control (e.g., ACID properties, serializable schedules, etc), recovery and database security.	Define and discuss advanced database concepts such as Bit sliced indexes, database buffer mangers, query processing in distributed environment.	

Weekly Lecture Plan

Week Number	**Lecture Topic**	**COs Met**	**Assignment/Labs/Tutorial**
1	Introduction and File Structures	CO1 and CO4	Programming assignment 1
2	Index Structures (I)	CO1	
3	Index Structures (II)	CO4	
4	Query Processing	CO2	
5	Query Processing (II)	CO2	Assignment on PostGRESQL
6	Query Optimization	CO2	
7	Query Optimization (II)	CO4	
8	Introduction to Transactions	CO3	Programming Assignment 3
9	Concurrancy Control	CO3	
10	Database Recovery	CO3	
11	Database Recovery	CO3	Assignment on Transactions
12	Databse Security	CO3 and CO4	
13	Disttributed Databases	CO4	

Assessment Plan

Type of Evaluation	**% Contribution in Grade**
Mid-sem	16%
End-sem	22%
Quiz	9%
Quiz	9%
Assignment	11%
Assignment	11%
Assignment	11%
Assignment	11%

*Please insert more row for other type of Evaluation

Resource Material

Type	**Title**
Textbook	R. Elmasri and S. Navathe, Fundamentals of Database Systems, 6th edition, Pearson.
Textbook	A. Silberschatz, H. Korth and S. Sudashan: Database System Concepts, 6th edition, McGraw Hill