UE18CS315: DATABASE TECHNOLOGIES: 4:0:0:0:4

# of Credits: 4 **# of Hours: 56**

Class #	Chapter Title/Reference Literature	Topics to be covered	% of Portions Covered	
			Reference Chapter	Cumulative
1	T1: 1.1 – 1.3	Review of The Relational Model of Data	18	18
2	T1: 2.1 – 2.6	Design Theory for Relational Databases		
3	T1: 13.1	Secondary Storage Management - The Memory Hierarchy		
4	T1: 13.2	- Disks		
5	T1: 13.3 – 13.4	- Accelerating Access to Secondary Storage		
6	T1: 13.5 – 13.8	- Arranging Data on Disk		
7	T1: 14.1	Index structures - Basics		
8	T1: 14.2	- B Trees		
9	T1: 14.3, 14.6.1, 14.6.2	- Hash tables		
10	T1: 14.6.7 - 14.7	- R Trees, Bitmap indexes		
11	T1: 15.1	Query Execution - Introduction to Physical Query Plan Operators	21	39
12	T1: 15.2	- One pass algorithm		
13	T1: 15.3	- Tuple-Based Nested-Loop Join		
14	T1: 15.4 – 15.5	- Two pass algorithm		
15	T1: 15.6	- Index-Based Algorithms		
16	T1: 15.7	- Buffer management		
17	T1: 15.8	- Algorithms Using More Than Two Passes		
18	T1: 16.1	The Query Compiler - Parsing and Preprocessing		
19	T1: 16.2	- Algebraic Laws for Improving Query Plans		
20	T1: 16.3	- From Parse Trees to Logical Query Plans		
21	T1: 16.4	- Estimating the Cost of Operations		
22	T1: 16.5 – 16.7	- Introduction to Cost-Based Plan Selection		
23	T1: 20.1.1	Models of Parallelism	21	60
24	T1: 20.1.2	Parallel Algorithms on Relations		
25	T1: 20.1.4	Performance of Parallel Algorithms		
26	T1: 20.2	The Map-Reduce Parallelism Framework		
27				
28	T1: 20.3.1	Distributed Databases		
29	T1: 20.3.2	Distributed transactions		
30	T1: 20.4	Distributed Query Processing		
31				
32	T1: 20.5	Distributed Commit		
33	T1: 20.6	Distributed Locking		
34	T1: 20.7	Peer-to-Peer Distributed Search		
35	R2: 24.1	Characteristics and Categories of NoSQL systems	21	81
36	T2: 4, 5	Document Databases		
37				
38	T2: 3	Column Oriented Databases		
39				
40	T2: 8	Key Value stores		

41				
42	T2: 6	Graph Databases		
43				
44				
45	Reference material	In memory databases		
46				
47	R2: 28.1	Overview of Data Mining Technology	19	100
48	R2: 28.5 – 28.6	Applications of Data Mining		
49				
50	R2: 29.1	Overview of Data Warehousing and OLAP		
51	R2: 29.3	Data Modeling for Data Warehouses		
52	R2: 29.4	Building a Data Warehouse		
53				
54	Ref Material	Overview of Data lakes		
55	Ref Material	Multi-model databases		
56				