**ACADEMIC PLAN FOR VII SEMESTER**

 **Subject: Database ManagementSystem**

**Class:7th Sem. (ECE) Subject Code: ETCS-425**

 **Total Lecture classes available: 44**

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| **S.No.** | **TOPICS TO BE COVERED** | **No. of Lectures** |
| 1 | **Introductory Concepts of DBMS**: Introduction and application of DBMS, Data Independence | 2 |
| 2 | **Database System Architecture** – levels | 2 |
| 3 | Mapping, Database users and DBA | 2 |
| 4 | Entity – Relationship model, constraints, keys, Design issues, | 2 |
| 5 | E-R Diagrams. | 1 |
| 6 | Extended E-R features- Generalization, Specialization, Aggregation. | 2 |
| 7 | Translating E-R model into Relational model | 2 |
|  |  |  |
| 8 | **Relational Model:** - The relational Model, The catalog, Types, Keys, | 2 |
| 9 | Relational Algebra ; Fundamental operations, Additional Operations | 2 |
| 10 | SQL fundamentals, DDL,DML,DCL  | 2 |
| 11 | PL/SQL Concepts, Cursors, Stored Procedures, Stored Functions | 2 |
| 12 | Database Integrity – Triggers. | 1 |
|  |  Total Hours | 22hrs |
|  | **2nd TERM END** |  |
| 13 | **Functional Dependencies** Non-loss Decomposition, First, Second, Third Normal Forms,  | 2 |
| 14 | Dependency Preservation, Boyce/Codd Normal Form, Multi-valued Dependencies and Fourth Normal Form,  | 3 |
| 15 | Join Dependencies and Fifth Normal Form. | 2 |
| 16 | **Transaction Management**: ACID properties,  | 1 |
| 17 | Serializability of Transaction, Testing for Serializability and concurrency control,. | 3 |
| 18 | Lock based concurrency control (2PL, Deadlocks), Time stamping methods, Database recovery management | 3 |
| 19 |  **Implementation Techniques**: Overview of Physical Storage Media, File Organization, Indexing and Hashing, B+ tree Index Files  | 3 |
| 20 | Query Processing Overview, Catalog Information for Cost Estimation, Selection Operation | 3 |
| 21 | Sorting, Join Operation, Materialized views, Database Tuning. | 2 |
|  |  Total Hours | 22 hrs |

Text Books:

[T1] Abraham Silberschatz, Henry F. Korth, S. Sudharshan, “Database System Concepts”, 5th Edition, Tata McGraw Hill, 2006

[T2] Elmsari and Navathe, “Fundamentals of Database Systems”, 6th Ed., Pearson, 2013

References Books:

[R1] C.J.Date, A.Kannan, S.Swamynathan, “An Introduction to Database Systems”, 8th Edition, Pearson Education, 2006.

[R2] J. D. Ullman, “Principles of Database Systems”, 2nd Ed., Galgotia Publications, 1999. [R3] Vipin C. Desai, “An Introduction to Database Systems”, West Publishing Co.,