

SYLLABUS :-

Database system architecture: Data Abstraction, Data Independence, Data Definition and Data Manipulation Languages. Data models: Entity-relationship, network, relational and object oriented data models, integrity constraints and data manipulation operations. Relational query languages: Relational algebra, tuple and domain relational calculus, SQL and QBE. Relational database design: Domain and data dependency, Armstrongs axioms, normal forms, dependency preservation, lossless design. Query processing and optimization: Evaluation of relational algebra expressions, query equivalence, join strategies, query optimization algorithms. Storage strategies: Indices, B-trees, hashing. Transaction processing: Recovery and concurrency control, locking and timestamp based schedulers, multiversion and optimistic Concurrency Control schemes. Advanced topics: Object-oriented and object relational databases, logical databases, web databases, distributed databases, data warehousing and data mining. Laboratory: Database schema design, database creation, SQL programming and report generation using a commercial RDBMS like ORACLE/SYBASE/DB2/SQL-Server/INFORMIX. Stud-ents are to be exposed to front end development tools, ODBC and CORBA calls from application Programs, internet based access to databases and database administration. References1. Abraham Silberschatz, Henry Korth, and S. Sudarshan, Database System Concepts, McGraw-Hill. 2. Raghu Ramakrishnan, Database Management Systems, WCB/McGraw-Hill. 3. Bipin Desai, An Introduction to Database Systems, Galgotia. 4. J. D. Ullman, Principles of Database Systems, Galgotia. 5. R. Elmasri and S. Navathe, Fundamentals of Database Systems, Addison-Wesley. 6. Serge Abiteboul, Richard Hull and Victor Vianu, Foundations of Databases. Addison-Wesley.