ST. ALOYSIUS COLLEGE(AUTONOMOUS), JABALPUR

Reaccredited 'A++ 'Grade by NAAC(CGPA:3.58/4.00)

College with Potential for Excellence by UGC

DST-FIST Supported & STAR College Scheme by DBT

BCA III Semester **Paper: -Minor**

Database Management System

Theory

No. of Lectures (in hours per week): 2 Hrs. per week

Total No. of Lectures: 60 Hrs. **Maximum Marks:** 60

Units	Topics	No. of Lectures
I	**Database Concepts:** Database and DBMS, Comparison between traditional file and DBMS, Characteristics, Components and Functions of DBMS, Advantages and disadvantages of the DBMS, DBMS users, Database administrator, ACID properties. **Database Design and Architecture:** Essentials of Database Design, Three level Architecture of Database- external, conceptual and internal, Data Models concepts: Hierarchical, Network and Relational, Operators, relations, domains and attributes, keys, traditional set operations, special relational operations.	12
II	**The E/R model:** Components of ER Diagram (Entity, attributes and relation), Notations for E-R diagram, Mapping Constraints, Extended E-R model (Generalization, Specialization and aggregation), Convert ER into table, Decomposition of tables. **Functional Dependency:** Introduction, types of FDs :- Trivial, Non- Trivial, Multivalued and Transitive FD. **Normalization:** Normalization Process, 1st NF , 2nd NF, 3rd NF, 4th NF and 5th NF, Relational decomposition.	12
III	**Relational algebra**: introduction, Selection and projection, set operations, renaming, Joins, Division, Tuple relational calculus, Domain relational Calculus, What is constraints, types of constrains, Integrity constraints.	12
IV	**SQL**: SQL commands: Data Definition Language, Data Manipulation Language and Transaction Control Language, index, view, Pattern Matching: like predicate, in, not in, between, not between, any, all, exist, order by, aggregate functions, group by, Sub query, Joining: inner, outer and Cartesian join. **SQL functions**: string functions, date functions, math functions.	12
V	Introduction to PL/SQL, variable, constant, control statements: if, case, loop, exit loop, for loop, continue and goto. Local and stored procedure, local and stored function, Database Trigger, Cursor, Exception handling: system defined and user defined exception.	12

TEXTBOOKS:

1. Gary W. Hansen & James V. Hansen,Database Management and Design,Prentice Hall of India Pvt Ltd.
2. Ramez Elmasri, Shamkant Navathe,Fundamentals of Database Systems,Pearson
3. Prateek Bhatia and Gurvinder Singh, Simplified approach to DBMS.

REFERENCE BOOK:

4. C.J. Date,An Introduction to Database System,Pearson
5. Abraham Silberschatz , Henry F. Korth, S. Sudharshan,Database System Concepts,Tata McGraw Hill