

B.Sc. Part – I Computer Science (Optional) (Semester –II) (NEP)
Course I Course Code: DSC-IV
Course Title: Advanced Database
Total Contact Hours: 30 Hrs (30 lectures of 60 min.)
Teaching Scheme: Theory – 02 Lect. / Week

Credits: 02

Total Marks: 50

Course Outcomes:

After successful completion of this course, students will able to:

- 1) Understand various functions and subqueries.
- 2) Understand various joins and views.
- 3) Use the control statements and stored procedures.
- 4) Use the cursors and triggers.

Unit – 1 MySQL Functions, Subqueries and Join (15hrs.)

Functions in MySQL: Aggregate functions (avg, count, min, max, sum), String Functions (concat, instr, mid, length, strcmp, trim, ltrim, rtrim), Math Functions (abs, ceil, floor, mod, pow, sqrt), Date and Time Functions (adddate, datediff, day, month, year, hour, min, sec).

Subqueries – Concepts of Subqueries, subqueries with IN, EXISTS, NOT EXISTS, subqueries restrictions, Nested subqueries, ANY/ALL clause, correlated sub queries, Group by and Having clause.

Concepts of Join, Types of Joins - Inner Join, Outer Join, Left Join, Right Join, Cross Join

Views (creating, altering dropping, renaming and manipulating views).

Unit – 2 Advanced MySQL (15 hrs.)

Control Statements- If, case and loop, **Block Structure and Stored procedures** – Creating and executing procedures with and without parameters, **Cursors-** Declare, open, fetch, close, **Triggers-** Create, show and drop trigger, Types of triggers.

Reference Books:

1. R. Elmasri, S.B. Navathe, Fundamentals of Database Systems 6th Edition, Pearson Education, 2010.
2. R. Ramakrishanan, J. Gehrke, Database Management Systems 3rd Edition, McGraw-Hill, 2002.
3. A. Silberschatz, H.F. Korth, S. Sudarshan, Database System Concepts 6th Edition, McGraw Hill, 2010.
4. R. Elmasri, S.B. Navathe Database Systems Models, Languages, Design and application Programming, 6th Edition, Pearson Education, 2013.
5. Database System Concept – Silberschatz, Korth
6. Introduction to Database Systems C. J. Date Pearsons Education
7. Learning MySQL- Hugh Williams, Saied Tahaghoghi
8. MySQL in a Nutshell, 2 nd Edition-A Desktop Quick Reference- Russell Dyer