

Elective Courses

Course Title: **Database Programming**

Course Code: **CACS453**

Year/Semester: **IV/VIII**

Class Load: **6 Hrs. /Week (Theory: 3Hrs, Practical 3Hrs.)**

Course Description

This course provides the comprehensive knowledge about database programming in relational database management system, which encompasses with overview of fundamental SQL statement, PL/SQL Block, Exception, Cursors, Record, Triggers, Procedures, Functions and Packages

Objectives: The general objectives of this course is to enhance advance programming skills in relational database management system.

Unit -1

Introduction of RDBMS

10 Hrs

Overview of the Oracle Database Architecture, Familiar with SQL*Plus, SQL*Plus Commands (DESCRIBE, LIST, APPEND, CHANGE, INPUT, DEL, CLEAR BUFFER, Using Script Files), Accepting Values at Runtime, Overview of Fundamental SQL Fundamental Command (DDL, DML, DCL, Join and Subquery)

Unit -2

PL/SQL

13 Hrs

PL/SQL Concepts, Architecture, Block structure, Executing PL/SQL Script, DBMS_OUTPUT.PUT_LINE Statement, substitution Variable feature, PL/SQL Language fundamentals, DML Statement in PL/SQL, Transaction Control in PL/SQL. Conditional Control (if, nested if, Case), Repetitive Control (While, for, simple loop, Nested, continue, loop label)

Unit -3

5 Hrs

PL/SQL Exception

Exception scope, user-defined exception, exception propagation, advance exception concepts (RAISE_APPLICATION_ERROR, EXCEPTION_INIT)

Unit -4

Database Cursors

5 Hrs

Types of cursors, cursor loop, Nested cursors cursor for loops, parameterized cursors, Nested cursors

Unit -5

Database Triggers

5 Hrs

Database Triggers BEFORE, AFTER Triggers, row and statement triggers, INSTEAD OF triggers

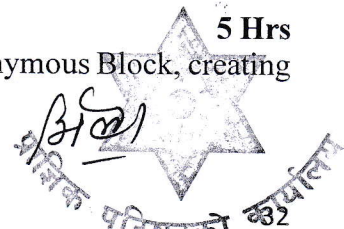
Unit -6

Record and procedures

5 Hrs

Record (Record types, Nested record) Procedure (Block Structure, Anonymous Block, creating procedure, IN, OUT parameters in Procedure)

Unit-7



Functions and Package**5 Hrs**

Functions (creating and invoking function and optimizing function in execution, creating packages, extending the package, package instantiation and initialization,

Laboratory Works

Laboratory works should be done covering all the topics listed above and a small work should be carried out using the concept learnt in each unit in individual or group.

Teaching Methods

The general teaching pedagogy includes class lectures, group discussions, case studies, guest lectures, research work, project work, assignments (theoretical and practical), and examinations (written and verbal), depending upon the nature of the topics. The teaching faculty will determine the choice of teaching pedagogy as per the need of the topics.

References

1. Benjamin Rosenzweig, E. R. (2015). Oracle PL/SQL by Example. New Yourk: Prentice Hall.
2. Gupta, S. K. (2016). Advanced Oracle PL/SQL Developer's Guide . Birmingham: Packt Publishing.
3. Lex de Haan, T. G. (2014). Beginning Oracle SQL. Apress.
4. McLaughlin, M. (2014). Oracle Database 12c PL/SQL Programming. New Delhi: McGrawHill Education.

