



Faculty of Computer Studies (FoCS)
Sub Committee for Curriculum Development

Format to submit syllabus

Course Name: Database Security and Performance Tuning

(UG/PG): PG

Number of Credits: 3

Level: 4

Learning Objective(s): After completion of this course students will be able to achieve the understanding for the following:

Security and Auditing in Databases.
To write the optimized sql query.

Pedagogy:

Lectures
Discussion
Case studies
Hands-on lab work

Pre-learning:

Students must have knowledge of Relation Databases and SQL queries.

Course Outline:

Sr. No.	Topics	Hours
1	Security Concept Discussion and Security Architecture, User Creation and Administration , Profiles, Password, Privileges and Roles	3
2	Security Models for Database Applications	4
3	Virtual Private Database and Database Auditing Models, Application and Data Auditing	5
4	Performance Tuning Overview: Write appropriate tuning goals	3

	Apply the tuning methodology, Identify common tuning problems	
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5	Tuning Tools: Monitoring tools overview ,Dynamic Performance Views, Wait Events, Performance Monitoring	4
6	Defining the Problem: Top SQL Reports, Performance versus Business Requirements, Performance Tuning Resources & Filing a Performance Service Request	4
7	Using Metrics and Alerts Metrics, Alerts, and Baselines Limitation of Base Statistics & Typical Delta Tools ,Benefits of Metrics, Statistic Histograms & Histogram Views, Database Control Usage Model & Setting Thresholds, Sql Injection	6
8	Identifying Problem SQL Statements SQL Statement Processing Phases & Role of the Optimizer, Identifying Bad SQL, Real Time SQL Monitoring , What Is an Execution Plan? Methods for Viewing Execution Plans & Uses of Execution Plans, Optimizing SQL Statements, Access Paths & Choosing an Access Path, Join & Sort Operations, How the Query Optimizer Chooses Execution Plans for Joins, Reducing the Cost	8
9	Tuning a Shared and Private Memory Area Tuning I/O	8
Total		45

Books Recommended:

1. Oracle Database 12c Performance Tuning Recipes By Sam Alapati
2. Database Security, 1st Edition By Alfred Basta and Melissa Zgola

Suggested Evaluation Methods:

Lab based Evaluations
Assignments
Presentation

Parallel/Similar courses the existing curriculum:

S.No.	Name of the course	Institute where it was offered

Name of Member	Prof. Harshad Gune	Dr. Tejaswini Apte			
Designation	Dy. Director	Asst. Professor			

Org. / Inst.	SICSR	SICSR			
Signature					

Name of the Expert:

Signature:

Date: