

PALOMAR COLLEGE
COURSE OUTLINE OF RECORD FOR
DEGREE CREDIT COURSE

_____ Transfer Course x A.A. Degree applicable course
(check all that apply)

COURSE NUMBER AND TITLE: CSIS 258 – Database Performance Tuning

UNIT VALUE: 3

MINIMUM NUMBER OF SEMESTER HOURS: 64

BASIC SKILLS REQUIREMENTS: Appropriate language and computational skills.

ENTRANCE REQUIREMENTS

PREREQUISITE: CSIS 257

COREQUISITE: None

RECOMMENDED PREPARATION: None

SCOPE OF COURSE:

Student will be introduced to the importance of good initial database design and the method used to tune a production Oracle9i database. The focus is on database and instance tuning rather than specific operating system performance issues. Students will gain practical experience tuning an Oracle database. Students will learn how to recognize, troubleshoot and resolve common performance related problems in administering an Oracle database.

SPECIFIC COURSE OBJECTIVES:

The successful student will be able to:

1. Configure Resource Manager to control resource usage.
2. Configure an Oracle database with an emphasis on good performance.
3. Detect and resolve latch and lock contention problems within the Oracle database environment.
4. Diagnose and resolve performance issues associated with Shared Server.
5. Use Oracle tools to diagnose performance problems.
6. Utilize Enterprise Manager to perform tuning tasks.
7. Perform day-to-day monitoring on an operational database using STATSPACK.
8. Identify and resolve I/O, data storage, and database configuration problems.
9. Configure memory and disk resources to optimize sort operations.
10. Reconfigure file structures for performance and other considerations.
11. List the important steps for outlining a tuning methodology.

CONTENT IN TERMS OF SPECIFIC BODY OF KNOWLEDGE:

- I. Overview of Oracle 9i Tuning
- II. Diagnostics and Tuning Tools
- III. Sizing the Shared Pool
- IV. Sizing the Buffer Cache
- V. Sizing other SGA Structures
- VI. Database Configuration and I/O Issues
- VII. Optimizing Sort Operations
- VIII. Diagnosing Contention for Latches
- IX. Monitoring and Detecting Lock Contention
- X. Tuning Oracle Shared Server
- XI. Application Tuning
- XII. Using Oracle Blocks Efficiently
- XIII. SQL Statement Tuning
- XIV. Tuning the Operating System and Using Resource Manager

REQUIRED READING:

Vaidyanath, Gaja et al. *Oracle Performance Tuning 101*, Redwood City, CA: Oracle Press, 2003

SUGGESTED READING: None

REQUIRED WRITING:

Oracle database tuning projects are assigned, requiring students to complete five or six lab exercises. Each lab will consist of a hands-on exercise applying theoretical principles learned in class. Labs must be well documented (at least one paragraph) in terms of their overall solution strategy.

OUTSIDE ASSIGNMENTS:

Students are expected to spend a minimum of three hours per unit per week in class and on outside assignments, prorated for short-term classes.

INSTRUCTIONAL METHODOLOGY:

Check all that apply:

- lecture
- laboratory
- lecture-laboratory combination
- directed study

DISTANCE LEARNING:

This course may be offered as a distance learning course and meets Title 5 regulations 55370, 55372, 55374, 55376, 55378, and 55380.

Yes No

If yes, check all that apply:

- Television Course (Video one-way, e.g. ITV, video cassette, etc.)
- Online Course (Text one-way, e.g. newspaper, correspondence, electronic file, etc.)
- Two-Way Video Conferencing (Two-way interactive video and audio)
- One-Way Video Conferencing (One-way interactive video and two-way interactive audio)
- Computer Assisted Instruction (A specialized form of mediated instruction relying primarily on student access to information and prepared lessons or teaching materials through a computer terminal, but not under immediate supervision of a qualified instructor.)

GRADING POLICY AND STANDARDS (include methods of determining whether the stated objectives have been met by students):

- 30-100% Assignments
- 0-30% Examinations

IS COURSE REPEATABLE FOR REASON(S) OTHER THAN DEFICIENT GRADE?

Yes No Number of times course may be taken for credit:

If yes, identify specific provision of Title 5 Division 2 section(s), 55761-55763 and 58161 which qualifies course as repeatable: 58161 (C) (2) (A)

CONTACT PERSON: Steve Perry x2990

SIGNATURES ON FILE: