



21250 Stevens Creek Blvd.  
Cupertino, CA 95014  
408-864-5678  
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Academic Year  
**2019 - 2020**

Computer Information Systems  
**Database Design (Oracle)**

Business, Computer Sciences and  
Applied Technologies Division  
Bldg. L1, Room L14  
408-864-8797

Counseling and Advising Center  
Student and Community  
Services Bldg., 2nd Fl.  
408-864-5400

Please visit the Counseling and Advising Center to apply for degrees and for academic planning assistance.

**Certificate of Achievement Requirements**

Completion of all major courses with a "C" grade or higher, or with a "Pass" if the course was taken on a Pass/No Pass (P/NP) basis and the "Pass" is equal to a "C" grade or higher.

Note: A maximum of six (6) quarter units may be transferred from other academic institutions.

**Database Design for Developers (Oracle)**

**Certificate of Achievement**

The Database Design for Developers Certificate of Achievement includes database management system fundamentals, SQL, PL/SQL and performance tuning. Students become proficient in organizing essential information and abstract relationships into a database. They also learn to update, maintain and repair databases and improve database performance. Database skills are applied by software engineers, business analysts, database architects, database administrators, database designers and reporting analysts.

*Program Learning Outcomes - upon completion, students will be able to:*

- Prepare and review a database design that includes logical and system representations.
- Design, code and debug SQL and PL/SQL programs.
- Apply performance tuning techniques to large-scale database applications.
- Create, design and debug intermediate level programs with basic C programming language.
- Create a database that is optimized to meet defined technical requirements.

1. Meet the requirements for this certificate level.
2. Complete the following.

|             |  |     |
|-------------|--|-----|
| CIS 22A     | Beginning Programming Methodologies in C++             | 4.5 |
| CIS 22B     | Intermediate Programming Methodologies in C++          | 4.5 |
| or CIS 22BH | Intermediate Programming Methodologies in C++ - HONORS |     |

**Complete four courses: 15.5-17.5**

|         |  |                  |
|---------|--|------------------|
| CIS 64A | Database Management Systems (4.5)                  |                  |
| CIS 64B | Introduction to SQL (4.5)                          |                  |
| CIS 64C | Introduction to PL/SQL (4.5)                       |                  |
| CIS 64D | Database Tuning (3)                                |                  |
| CIS 64E | Introduction to Large Scale Processing Systems (4) |                  |
| CIS 64F | Introduction to Big Data and Analytics (4)         |                  |
|         | <b>Total Units Required .....</b>                  | <b>24.5-26.5</b> |