



21250 Stevens Creek Blvd.  
Cupertino, CA 95014  
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Academic Year  
**2022 - 2023**

Computer Information Systems  
**Database Development  
Practitioner**

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

Find your counselor at  
deanza.edu/our-counselors

Please visit your counselor to apply for certificates or degrees and for academic planning assistance.

**Certificate of Achievement Requirements**

- Completion of all major courses with a C grade or higher.

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

**Certificate of Achievement-Advanced Requirements**

- Completion of all major courses with a C grade or higher.
- Demonstrated proficiency in English and mathematics as evidenced by eligibility for EWRT IA, EWRT IAH, EWRT IAS with EWRT IAT, or ESL 5 and eligibility for MATH 114.

Note: A maximum of 18 quarter units may be transferred from other academic institutions.

**A.A./A.S. Degree Requirements**

1. Completion of all General Education (GE) requirements (32-43 quarter units) for the A.A./A.S. degree. GE units must be completed with a minimum 2.0 GPA (C average).
2. Completion of all major courses with a C grade or higher. Major courses can also be used to satisfy GE requirements (except for Liberal Arts degrees).  
  
Note: A maximum of 22 quarter units from other academic institutions may be applied toward the major.
3. Completion of a minimum of 90 degree-applicable quarter units (GE and major units included). All De Anza courses must be completed with a minimum 2.0 GPA (C average). All De Anza courses combined with courses transferred from other academic institutions must be completed with a minimum 2.0 GPA (C average).

Note: A minimum of 24 quarter units must be earned at De Anza College.

**Database Development Practitioner  
Certificate of Achievement**

The Database Development Practitioner Certificate of Achievement includes database management system fundamentals, SQL, PL/SQL, large scale data processing and big data and analytics. Students become proficient in organizing essential information and abstract relationships into a database. They also learn to update, maintain and repair databases. 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	

<b>Complete four courses:</b>	<b>17-17.5</b>
CIS 44A	Database Management Systems (4.5)
CIS 44F	Introduction to Big Data and Analytics (4)
CIS 64B	Introduction to SQL (4.5)
CIS 64C	Introduction to PL/SQL (4.5)
CIS 64E	Fundamentals of Large Scale Cloud Computing (4)
<b>Total Units Required</b>	<b>26-26.5</b>

# Database Development Practitioner

## Certificate of Achievement-Advanced

### A.A. Degree

The Certificate of Achievement-Advanced and A.A. degree prepare students for an entry-level position in the database field to work as a data analyst, business analyst, database project coordinator or database engineer.

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

- Demonstrate requirement analysis, design and coding skills in languages commonly used in data management with large scale databases
- Apply skills for business analysis to convert data into information in real time, allowing business owners to make effective just-in-time decisions

## Certificate of Achievement-Advanced

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

**Complete one option:** **9**

### Option 1:

- 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 (4.5)

### Option 2:

- CIS 36A      Introduction to Computer Programming  
Using Java (4.5)
- CIS 36B      Intermediate Problem Solving in Java (4.5)

### Option 3:

- CIS 41A      Python Programming (4.5)
- CIS 41B      Advanced Python Programming (4.5)

**Complete four courses:** **17-17.5**

- CIS 44A      Database Management Systems (4.5)
- CIS 44F      Introduction to Big Data and Analytics (4)
- CIS 64B      Introduction to SQL (4.5)
- CIS 64C      Introduction to PL/SQL (4.5)
- CIS 64E      Fundamentals of Large Scale  
Cloud Computing (4)

**Complete two courses:** **9**

- CIS 9        Introduction to Data Science (4.5)
- CIS 44H      R Programming (4.5)
- CIS 64G      Data Visualization  
Methodology and Tools (4.5)

**Complete two courses:** **9**

- CIS 18A      Introduction to Unix/Linux (4.5)
- CIS 18B      Advanced Unix/Linux (4.5)
- Total Units Required ..... 44-44.5**

### A.A. Degree

- Major*      *Database Development Practitioner*      44-44.5
- GE*        *General Education (32-43 units)*
- Electives*    *Elective courses required when the major  
units plus GE units total is less than 90 units*
- Total Units Required .....90**