

**CSCI 242 Windows MFC Programming (3)**

3 hours lecture - 2 hours laboratory

**Prerequisite:** A minimum grade of 'C' in CSCI 222**Transfer acceptability:** CSU

Windows programming using the WIN32 API for writing applications that use multitasking, threads, synchronization, and structured exception handling. Covers implementation of Dynamic Link Libraries (DLLs), Graphic Device Interface (GDI) optimization, and creation of Help files. Includes a detailed study of the Microsoft Foundation Class (MFC) Library. Presents techniques to add Object Linking and Embedding (OLE) functionality to Windows applications.

**CSCI 260 Video Game Programming I (4)**

3½ hours lecture - 1½ hours laboratory

**Prerequisite:** A minimum grade of 'C' in CSCI 222**Note:** May be taken 4 times; maximum of 4 completions in any combination of CSCI 260, 261**Transfer acceptability:** CSU

Introduction to the programming of video games. Course will explore 3D game development with Microsoft's DirectX 9.0. Students learn how to create a 3D game from scratch. They learn the basics of designing and using a 3D engine. Includes hands-on laboratory experience reinforcing the lecture, text, and course materials.

**CSCI 261 Video Game Programming II (4)**

3½ hours lecture - 1½ hours laboratory

**Prerequisite:** A minimum grade of 'C' in CSCI 260**Note:** May be taken 4 times; maximum of 4 completions in any combination of CSCI 260, 261**Transfer acceptability:** CSU

Builds on basic 3D game programming skills acquired during Video Game Programming I. Focuses on sound, input, networking and methods such as artificial intelligence to drive these games. Includes hands-on laboratory experience reinforcing the lecture, text and course materials.

**CSCI 270 Mac OS Cocoa Programming (3)**

2½ hours lecture - 1½ hours laboratory

**Prerequisite:** A minimum grade of 'C' in CSCI 110 or CSCI 220**Transfer acceptability:** CSU

Introduction to programming using Objective-C language, Apple's X-Code and Interface Builder for creating applications targeting the Macintosh platform with event-driven structures that support the development of graphical user interfaces. Includes hands-on laboratory experience reinforcing the lecture material.

**CSCI 271 OpenGL for Mac OS (3)**

2½ hours lecture - 1½ hours laboratory

**Prerequisite:** A minimum grade of 'C' in CSCI 270**Transfer acceptability:** CSU

Macintosh OS X Cocoa Software Development Environment. The OpenGL frameworks are geared primarily toward game development or applications that require high frame rates. OpenGL is a C-based interface used to create 2D and 3D content on Macintosh desktop computers. iPhone OS supports OpenGL drawing through the OpenGL ES framework, which provides support for both the OpenGL ES 2.0 and OpenGL ES v1.1 specifications. OpenGL ES is designed specifically for use on embedded hardware systems and differs in many ways from desktop versions of OpenGL.

**CSCI 275 iPhone SDK Programming (3)**

2½ hours lecture - 1½ hours laboratory

**Prerequisite:** A minimum grade of 'C' in CSCI 172**Transfer acceptability:** CSU

Focus on the tools and APIs required to build applications for the iPhone platform using the iPhone SDK. User interface designs for mobile devices and unique user interactions using multitouch technologies. Object-oriented design using model-view-controller pattern, memory management, and Objective-C programming language. iPhone APIs and tools including Xcode, Interface Builder and Instruments on Mac OS X.

**CSCI 295 Directed Study in Computer Science (1, 2, 3)**

3, 6, or 9 hours laboratory

**Prerequisite:** Approval of project or research by department chairperson/director**Note:** May be taken 4 times for a maximum of 6 units**Transfer acceptability:** CSU; UC – Credit determined by UC upon review of course syllabus

Designed for the student who has demonstrated a proficiency in computer science subjects and the initiative to work independently on a particular sustained project which does not fit into the context of regularly scheduled classes.

## Computer Science and Information Systems - Database (CSDB)

See also CSIS - Computer Science, CSIS - Information Technology, CSIS - Networking, and CSIS - Web Technology

Contact the Computer Science and Information Systems Department for further information.

(760) 744-1150, ext. 2387

Office: ST 6

<http://www.palomar.edu/csib>**Certificates of Proficiency -**

Certificate of Proficiency requirements are listed in Section 6 (green pages).

- Microsoft SQL Database Administrator
- Oracle Database

**PROGRAMS OF STUDY****Microsoft SQL Database Administrator**

Microsoft SQL Database Administrator is a validation program that provides a reliable measure of technical proficiency and expertise in implementation and administration of Microsoft SQL Server™ databases.

**CERTIFICATE OF PROFICIENCY**

Program Requirements		Units
CSDB 210	SQL Server Administration	3
CSDB 220	SQL Server Programming	3
CSNT 111	Networking Fundamentals	4
CSNT 121	Windows Server	3
CSNT 221	Windows Infrastructure Administration	3
<b>TOTAL UNITS</b>		<b>16</b>

**Oracle Database**

Oracle is the most widely used relational database management system in the world. This certificate offers a series of courses designed to provide the fundamentals to become successful in the use of this powerful database system.

**CERTIFICATE OF PROFICIENCY**

Program Requirements		Units
CSDB 140	Introduction to Oracle	3
CSDB 240	Oracle DBA I	3
CSDB 241	Oracle DBA II	3
CSDB 250	Oracle Performance Tuning	3
<b>Electives (Select 1 course)</b>		
CSDB 150	Oracle Data Base Design	3
CSDB 260	Oracle PL/SQL Programming	3
<b>TOTAL UNITS</b>		<b>15</b>

**COURSE OFFERINGS****CSDB 110 Introduction to SQL (3)**

2½ hours lecture - 1½ hours laboratory

**Transfer acceptability:** CSU

Intended for individuals who want to learn how to search for and manipulate data in a database, create tables and indexes, handle security, control transaction processing, and learn the basics of how to design a database.

- CSDB 120 SQL Database Design** (3)  
 2½ hours lecture - 1½ hours laboratory  
**Prerequisite:** A minimum grade of 'C' in CSDB 110  
**Transfer acceptability:** CSU  
 Provides training in administering and implementing Microsoft SQL Server.
- CSDB 140 Introduction to Oracle** (3)  
 2½ hours lecture - 1½ hours laboratory  
**Transfer acceptability:** CSU  
 An introduction to relational database concepts including the design and creation of database structures to store, retrieve, update and display data.
- CSDB 150 Oracle Database Design** (3)  
 2½ hours lecture - 1½ hours laboratory  
**Prerequisite:** A minimum grade of 'C' in CSDB 140  
**Transfer acceptability:** CSU  
 A top-down, systematic approach to the development of Oracle relational databases.
- CSDB 210 SQL Server Administration** (3)  
 2½ hours lecture - 1½ hours laboratory  
**Prerequisite:** A minimum grade of 'C' in CSDB 110  
**Transfer acceptability:** CSU  
 Provides the knowledge and skills necessary to administer and troubleshoot information systems that incorporate Microsoft SQL Server Enterprise Edition.
- CSDB 220 SQL Server Programming** (3)  
 2½ hours lecture - 1½ hours laboratory  
**Prerequisite:** A minimum grade of 'C' in CSDB 120  
**Transfer acceptability:** CSU  
 Provides the knowledge and skills necessary to design, implement, and program database solutions by using Microsoft SQL Server.
- CSDB 240 Oracle DBA I** (3)  
 2½ hours lecture - 1½ hours laboratory  
**Prerequisite:** A minimum grade of 'C' in CSDB 140  
**Transfer acceptability:** CSU  
 Design, create, and maintain an Oracle database; gain a conceptual understanding of the Oracle database architecture and how its components work and interact with one another; and learn how to create an operational database and properly manage the various structures in an effective and efficient manner. Topics are reinforced with structured hands-on practices.
- CSDB 241 Oracle DBA II** (3)  
 2½ hours lecture - 1½ hours laboratory  
**Prerequisite:** A minimum grade of 'C' in CSDB 240  
**Transfer acceptability:** CSU  
 Transporting data between databases, and the utilities to perform these activities. Introduction to networking concepts and configuration parameters, as well as how to solve some common network problems. In hands-on exercises, configure network parameters so that database clients and tools can communicate with the Oracle database server. Addresses backup and recover techniques, and examines various backup, failure, restore and recovery scenarios. Examine backup methodologies based on business requirements in a mission critical enterprise. Use multiple strategies and Oracle Recover Manager to perform backups, and restore and recover operations.
- CSDB 250 Oracle Performance Tuning** (3)  
 2½ hours lecture - 1½ hours laboratory  
**Prerequisite:** A minimum grade of 'C' in CSDB 240  
**Transfer acceptability:** CSU  
 Introduction to the importance of good initial database design and the method used to tune a production Oracle 9i database. The focus is on database and instance tuning rather than specific operating system performance issues. Practical experience tuning an Oracle database. Recognize, troubleshoot, and resolve common performance related problems in administering an Oracle database.
- CSDB 260 Oracle PL/SQL Programming** (3)  
 2½ hours lecture - 1½ hours laboratory  
**Prerequisite:** A minimum grade of 'C' in CSDB 140

**Transfer acceptability:** CSU

Learn the Oracle PL/SQL language, a flexible procedural extension to SQL, which increases productivity, performance, scalability, portability and security. Use PL/SQL's tight integration with Oracle database that allows application developers to build and deploy distributed applications with considerable flexibility. Learn how to utilize advanced techniques to design PL/SQL applications to solve complex business problems.

## Computer Science and Information Systems - Information Technology (CSIT)

See also CSIS - Computer Science, CSIS - Database, CSIS - Networking, and CSIS - Web Technology

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Office: ST 6

<http://www.palomar.edu/csis>

**Associate in Arts Degrees -**

AA Degree requirements are listed in Section 6 (green pages).

- Information Technology

**Certificates of Achievement -**

Certificate of Achievement requirements are listed in Section 6 (green pages).

- Information Technology

**Certificates of Proficiency -**

Certificate of Proficiency requirements are listed in Section 6 (green pages).

- Microsoft Office User Specialist
- Visual Basic
- Web 2.0

**PROGRAMS OF STUDY****Information Technology**

This program prepares students for employment in information systems applications development in business and industry. The focus is on developing skills in programming languages, Internet, spreadsheets, databases, presentation graphics, word processing, in systems analysis and design, project management, and database design. See a counselor for additional university transfer requirements in this major.

**A.A. DEGREE MAJOR OR CERTIFICATE OF ACHIEVEMENT**

Program Requirements		Units
CSIT 105	Computer Concepts and Applications	3
CSIT 120/ R CSIS 120	Computer Applications	3
CSIT 170	Visual Basic I	4
CSIT 290	Systems Analysis and Design	4
CSDB 110 or CSDB 140	Introduction to SQL	3
CSNT 110	Introduction to Oracle	3
CSNT 111	Hardware and O.S. Fundamentals	4
CSWB 110/ R CSIS 110	Networking Fundamentals	4
	Web Site Development with XHTML	3
<b>Electives (Select 3 courses)</b>		
CSIT 70	Web 2.0 – The Web's Edge	3
CSIT 121	Advanced Computer Applications	3
CSIT 180	C# Programming I	3
CSIT 270	Visual Basic II	4
CSCI 130	Linux Fundamentals	3
CSDB 120 or CSDB 150	SQL Database Design	3
	Oracle Database Design	3