

PALOMAR COLLEGE
COURSE OUTLINE OF RECORD FOR
DEGREE CREDIT COURSE

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

COURSE NUMBER AND TITLE: CSIS 240 Video Game Programming

UNIT VALUE: 4

MINIMUM NUMBER OF SEMESTER HOURS: 80

BASIC SKILLS REQUIREMENTS: Appropriate language and computational skills.

ENTRANCE REQUIREMENTS

PREREQUISITE: CSIS 235 C for Programmers or CSIS 280 C++ and Object-Oriented Programming

COREQUISITE: None

RECOMMENDED PREPARATION: None

SCOPE OF COURSE:

Introduction to the programming of video games, Course will explore the use of video game engines and how to write a video game as a C application that makes calls to the engine. Additional topics will focus on efficient utilization of variables and data structures, run-time optimization, real-time debugging, version control maintenance, and management of bug lists. Includes hands-on laboratory experience reinforcing the lecture, text, and course materials.

SPECIFIC COURSE OBJECTIVES:

Successful students will be able to:

1. Correctly compile the supplied game engine.
2. Write an application that reads the input devices and calls the game engine to move an object on the screen.
3. Modify the application to detect collisions between objects.
4. Modify the application to allow the player to fire at other players.
5. Add a scoring mechanism to the game.
6. Write and implement artificial intelligence routines for the enemies.
7. Allow a player to take damage when hit by an enemy.
8. Add music and sound effects.
9. Generate valid test cases for subroutines and functions prior to installation in the game.
10. Use variables efficiently to conserve storage and/or execution time.

11. Design efficient algorithms to solve game-related problems.
12. Optimize slower routines to make them run faster.
13. Debug a game in real-time through the use of diagnostic aids such as print statements, border color changes, or onscreen visual aids.
14. Demonstrate the use of appropriate version control, archiving major revisions to the game and the game engine.
15. Maintain a bug-list in either a database or text file, along with any efforts taken to correct the bugs, and the degree of confidence in those fixes.
16. Locate the answers to technical questions on the Internet using specialized search engines.
17. Demonstrate an understanding of what it's like to work in the video game industry.

CONTENT IN TERMS OF SPECIFIC BODY OF KNOWLEDGE:

1. Introduction, course requirements, policies, and method of evaluation.
2. What is different about programming a video game?
3. What is a game engine and why we use them?
4. Introduction to Windows Programming
5. Advanced Windows Programming
6. DirectX Fundamentals
7. DirectDraw
8. Advanced DirectDraw and Bitmapped Graphics
9. Vector Rasterization and 2D Transformations
10. DirectInput and Force Feedback
11. DirectSound and DirectMusic
12. Algorithms, Data Structures, Memory Management, and Multithreading
13. Artificial Intelligence
14. Physics Modeling
15. Text Games – Language Analysis and Parsing
16. Putting It All Together
17. Common Mistakes Game Programmers Make
18. Game Programming Resources on the Web

REQUIRED READING:

Texts appropriate for the course, such as the following:

LaMothe, André. Tricks of the Windows Game Programming Gurus, 2nd Edition, SAMS Publishing, 2002

SUGGESTED READING:

Other books on video game design and programming, graphics, sound or music, C, C++ or Visual C++ programming techniques.

REQUIRED WRITING:

Problem solving exercises are assigned, requiring students to complete five or six computer programming labs. Each programming lab will consist of a hands-on exercise applying theory principles learned in class. Programs must be well documented (at least one paragraph) in terms of their overall design goals. Additionally, each subprogram must be documented (two or three sentences) as to its purpose and overall performance.

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.

Several major programming assignments are assigned, each ranging from 2 – 8 weeks to complete by an average student.

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):

Lab Assignments	50%
Midterm	20%
Final	30%
TOTAL	100%

Late lab assignments will be penalized one letter grade per each week that they are late. There will be three labs. The first two are worth 12.5% of the total grade each. The third lab is a half semester-length project and will count double (25% of the total grade).

Students who complete the course with a passing grade may repeat the class for credit. They will be expected to submit a proposal, during the first two weeks for the instructor's approval, describing a semester-length project they wish to work on. Since they will not be required to repeat the midterm and final exams, their entire grade will be based on that project.

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

Yes X No _____ Number of times course may be taken for credit: 4

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

CONTACT PERSON: Ed Magnin x5410 (or 760-929-9630)

SIGNATURES ON FILE