CompuScholar, Inc.

Alignment to Florida **"Multi-User Game & Simulation Programming"** Course Standards

Florida Course Details:

Course Name:	Multi-User Game & Simulation Programming (2020-2021)
Course Code(s):	8208340
Credit:	1
State Standards Link:	http://www.fldoe.org/core/fileparse.php/19869/urlt/8208300-2021.rtf

CompuScholar Course Details:

Course Title:	Unity Game Programming
Course ISBN:	978-0-9887070-7-8
Course Year:	2019

Note 1: Citation(s) listed may represent a subset of the instances where objectives are met throughout the course.

Note 2: Citation(s) for a "Lesson" refer to the "Lesson Text" elements and associated "Activities" within the course, unless otherwise noted. The "Instructional Video" components are supplements designed to introduce or re-enforce the main lesson concepts, and the Lesson Text contains full details.

Course Description

This course is focused on students acquiring the appropriate programming skills for rendering a game or simulation product, including program control, conditional branching, score-keeping, timed event strategies and methodologies, and implementation issues specific to multi-user game/simulation products.

Course Standards

40.0 Identify and describe basic network terminology and network security. The student will be able to:	**CITATION(S)**
40.01 Define networking and describe the purpose of a network.	N/A (See Web Design, Digial Savvy)
40.02 Identify the purposes and interrelationships among the major components of networks (e.g., servers, clients, transmission media, network operating system, network boards).	N/A (See Web Design, Digial Savvy)
40.03 Describe the various types of network topologies.	N/A (See Web Design, Digial Savvy)
40.04 Describe the various types of game protocols	N/A
40.05 Demonstrate knowledge of general security concepts.	Suppl. Chapter 1, Lesson 3
40.06 Develop an awareness of communication security concepts.	N/A

40.07 Develop an awareness of network infrastructure security.	N/A
40.08 Describe the various types of multiplayer game architectures.	N/A
40.09 Identify networking and server design requirements for multi-player games.	N/A
40.10 List and describe performance metrics for networked games.	N/A

41.0 Game configuration. The student will be able to:	**CITATION(S)**
41.01 Create a window to run a game.	Chapter 24, Lesson 2
41.02 Describe and use appropriate game libraries to run a windowed game.	Chapter 1 Chapter 24, Lesson 2
41.03 Use reference materials such as on-line help, vendor bulletin boards, tutorials, and manuals available.	Chapter 2, Lesson 1
41.04 Troubleshoot problems with computer hardware based on different graphic modes of the game.	N/A
41.05 Describe ethical issues and problems associated with computer games.	Suppl. Chapter 1, Lesson 1 Suppl. Chapter 2, Lesson 1
41.06 Read and comprehend technical and non-technical reading assignments related to course content including trade journals, books, magazines and electronic sources.	N/A
41.07 Respond to and utilize information derived from multiple sources (e.g., written documents, instructions, e-mail, voice mail) to solve business problems and complete business tasks.	Chapters 14, 26 and many course activities
41.08 Explore, design, implement, and evaluate organizational structures and cultures for managing project teams.	Chapter 25
41.09 Identify characteristics of operating systems and graphics pipeline.	Suppl. Chapter 3, Lesson 6
41.10 Distinguish among integer and floating-point bounding box collision calculations.	N/A
41.11 Illustrate various configurations of software libraries.	Chapter 2, Lesson 1 Chapter 24, Lessons 2-4

42.0 Test programs. The student will be able to:	**CITATION(S)**
42.01 Develop data for use in program testing.	Chapter 11, Lesson 2 Chapter 14, Lesson 3
42.02 Perform debugging activities.	Chapter 11, Lesson 2 Chapter 14, Lesson 3
42.03 Distinguish among the different types of program and design errors.	Chapter 11, Lessons 1-2

42.04 Evaluate program test results.	Chapter 11, Lesson 2 Chapter 14, Lesson 3
42.05 Execute programs and subroutines as they relate to the total application.	Throughout the course
42.06 Use trace routines of compilers to assist in program debugging.	Chapter 11, Lesson 1
42.07 Compile and run programs.	Throughout the course

43.0 Plan program design. The student will be able to:	**CITATION(S)**
43.01 Formulate a plan to determine program specifications individually or in groups.	Chapters 13, 14, 25
43.02 Use a graphical representation or pseudo code to represent the structure in a program or subroutine.	Chapter 21, Lesson 2
43.03 Design programs to solve problems using problem-solving strategies.	Chapter 13
43.04 Prepare proper input/output layout specifications.	Chapter 13, Lessons 1 - 2 Chapter 22
43.05 Examine existing utility programs and subroutines for use with other programs.	N/A
43.06 Manually trace the execution of programs and verify that programs follow the logic of their design as documented.	Chapter 11, Lesson 2

44.0 Create and maintain documentation. The student will be able to:	**CITATION(S)**
44.01 Write documentation to assist operators and end-users.	Chapters 13, 14, 25
44.02 Follow established documentation standards.	Chapters 13, 14, 25
44.03 Update existing documentation to reflect program changes.	Chapters 13, 14, 25

45.0 Code programs. The student will be able to:	**CITATION(S)**
45.01 Utilize reference manuals.	Chapter 2, Lesson 1
45.02 Write programs according to recognized programming standards.	Throughout the course
45.03 Write internal documentation statements as needed in the program source code.	Chapter 3, Lesson 3
45.04 Code programs in high-level languages for gaming and simulation applications.	Throughout the course
45.05 Write code that accesses sequential, indexed sequential, random, and direct files.	N/A

45.06 Code programs using logical statements (e.g., if-then-else, do...while).	Chapter 7 Chapter 12, Lessons 2 - 3
45.07 Enter and modify source code using a program language editor.	Throughout the course
45.08 Code routines within programs that validate input data.	N/A
45.09 Use the rounding function in calculations within programs.	N/A
45.10 Write programs that display text.	Chapter 6, Lesson 4
45.11 Demonstrate proficiency in drawing lines using graphic primitive functions.	N/A
45.12 Demonstrate proficiency in drawing rectangles using graphic primitive functions.	N/A
45.13 Demonstrate proficiency in drawing circles using graphic primitive functions.	N/A
45.14 Demonstrate proficiency in drawing ellipses using graphic primitive functions.	N/A
45.15 Demonstrate proficiency in drawing polygons using graphic primitive functions.	N/A
45.16 Write programs that use composite graphic objects.	Chapter 8
45.17 Write programs that load a bitmap for background.	Chapter 15, Lesson 1 Chapter 16, Lesson 1
45.18 Write programs that use a sprite handler.	Chapter 2, Lesson 3 and throughout the course
45.19 Write programs that use animation.	Chapter 17
45.20 Write programs that use scrolling.	Chapter 17
45.21 Write programs that use transparency.	Chapter 16, Lesson 3

46.0 Demonstrate an understanding of operating systems, environments, and platforms. The student will be able to:	**CITATION(S)**
46.01 Identify various types of operating systems/environments for different computer hardware platforms.	Chapter 24, Lessons 2 - 4
46.02 Assess and analyze the functions of different operating systems.	Chapter 24, Lessons 2 - 4
46.03 Distinguish between different types of computer hardware platforms.	Chapter 24, Lessons 2 - 4

47.0 Implement enhanced program structures. The student will be able to:	CITATION(S)
47.01 Write programs that include tables or arrays and routines for data entry and lookup.	Chapter 9, Lesson 3 Chapter 12
47.02 Write routines to sort arrays.	N/A
47.03 Write programs that sort records in files.	N/A
47.04 Write programs to process transactions.	N/A
47.05 Write programs that use iteration.	Chapter 12, Lessons 2 - 3
47.06 Write programs that read and write sequential files.	N/A
47.07 Write programs that read and write random files.	N/A

48.0 Implement multimedia programming. The student will be able to:	CITATION(S)
48.01 Demonstrate proficiency in creating multiple composite objects.	Chapters 8, 10
48.02 Demonstrate proficiency in moving composite graphics objects.	Chapters 8, 10
48.03 Demonstrate proficiency in rotating composite graphics objects by hand.	N/A
48.04 Distinguish between flock and flee artificial intelligence algorithms.	Chapter 21, Lesson 3
48.05 Write programs that use blitting.	N/A
48.06 Simulate circular game board.	N/A
48.07 Demonstrate proficiency in creating a firing simulation.	Chapter 10
48.08 Identify the basic constructs used in bounding box collision algorithm.	Chapter 5, Lesson 2
48.09 Identify the basic constructs used in truer bounding box collision.	Chapter 5, Lesson 2
48.10 Demonstrate proficiency in creating a creating a bouncing simulation.	Chapter 5
48.11 Simulate pattern based movement.	Chapter 21
48.12 Simulate multiple sprites movement.	Throughout the course
48.13 Identify the basic constructs used in keyboard input.	Chapter 4, Lesson 3 Chapter 22

48.14 Identify the basic constructs used in mouse input.	Chapter 4, Lesson 3 Chapter 22
48.15 Identify the basic constructs used in double buffering.	Suppl. Chapter 3, Lesson 6

49.0 Develop an understanding of programming techniques and concepts. The student will be able to:	**CITATION(S)**
49.01 Identify the basic constructs used in structured programming.	Chapter 9
49.02 Distinguish between top-down and bottom-up design.	N/A
49.03 Distinguish between iteration and recursion.	N/A
49.04 Evaluate Boolean expressions.	Chapter 7, Lessons 1 - 2
49.05 Distinguish between interpreters and compilers.	Chapter 3, Lesson 1