Texas CTE

Video Game Programing

Knowledge and Skills. VIDEOGD2

1 **The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:** VIDEOGD2.1

- A identify and demonstrate positive work behaviors and personal qualities needed to be employable; VIDEOGD2.1A
- B demonstrate skills such as building a resume related to seeking and applying for employment; VIDEOGD2.1B
- C create a career portfolio to document information such as work experiences, licenses, certifications, and work samples; and VIDEOGD2.1C
- D compare and evaluate employment opportunities in the game programming industry. VIDEOGD2.1D

2 **The student applies programming skills related to software development and computer programming. The student is expected to:** VIDEOGD2.2

- A develop software applications; VIDEOGD2.2A
- B analyze the basic programming structure of application and be able to debug, compile, and run an application; VIDEOGD2.2B
- C create, name, and assign values to variables; VIDEOGD2.2C
- D create custom methods that can return values and take parameters; VIDEOGD2.2D
- E apply common built-in objects and reference types; VIDEOGD2.2E
- F apply common programming statements to implement flow control, looping, and exception handling; VIDEOGD2.2F
- G create, initialize, and use collections; and VIDEOGD2.2G
- H design and create custom class-constructors and use the object-oriented techniques of inheritance, abstraction, polymorphism, and encapsulation. VIDEOGD2.2H

3 **The student applies game development skills. The student is expected to:** VIDEOGD2.3

- A demonstrate significant understanding of game development tools including graphic design, game engines, animation, editors, and programing VIDEOGD2.3A
- B apply core programming logic and techniques that are used in building games; VIDEOGD2.3B
- C identify the code, structure, and layout of a fully functional role-playing game; VIDEOGD2.3C

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D create and customize new game elements such as characters, items, chests, quests, and monsters; VIDEOGD2.3D

E create enhancements to the combat engine logic with role-playing game; VIDEOGD2.3E

F research the inner workings of the role-playing game system, for the purpose of modifying simulated game actions; and VIDEOGD2.3F

G describe how a two-dimensional tile-based rendering and collision system works to create maps in a game. VIDEOGD2.3G

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4 The student applies creativity, innovation, and critical-thinking skills to video game programming methodology. The student is expected to: VIDEOGD2.4

A demonstrate the ability to enhance existing game program(s) by customizing screens, adding levels, adding characters, and adding graphics; VIDEOGD2.4A

B create, design, and program original working game features; VIDEOGD2.4B

C explain how separated game logic fits together to form a cohesive game application; VIDEOGD2.4C

D critique beta applications and provide solutions to fix bugs and ensure performance; VIDEOGD2.4D

E conduct a self-evaluation and discuss findings with peers VIDEOGD2.4E

F compare projects with the required established game specifics; and VIDEOGD2.4F

G interpret technical and increasingly complex programming instructions in order and in detail. VIDEOGD2.4G

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5 The student applies communication and collaboration skills as an individual and as part of a team. The student is expected to: VIDEOGD2.5

A demonstrate the concepts of the original game and conduct in-class presentations including demonstration of original game concepts; VIDEOGD2.5A

B analyze and solve program errors individually or in teams and collaborate with classmates in problem solving and debugging program errors; and VIDEOGD2.5B

C apply technical writing skills to explain game design concepts, document programming logic, and document development processes VIDEOGD2.5C

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6 The student applies the use of appropriate and available digital tools for research and learning. The student is expected to: VIDEOGD2.6

A review and research websites, wiki's, and blogs for appropriate content, ideas, and best practices to engage other users; and VIDEOGD2.6A

B investigate websites to explain concepts learned and to reference coding syntax. VIDEOGD2.6B

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7 The student applies engineering, physics, and mathematical concepts critical to game development. The student is expected to: VIDEOGD2.7

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A discuss and describe the principles of software engineering design within complex functional games; VIDEOGD2.7A

B apply the principles of software engineering to enhance a complex functional game including multiple movements and multiple controls; VIDEOGD2.7B

C apply the principles of software engineering within a complex fully-functional game/bug free program; VIDEOGD2.7C

D reverse engineer existing game functionality to understand game design; and VIDEOGD2.7D

E demonstrate the use of mathematics and physics to evaluate behavior in an existing game to enhance core logic. VIDEOGD2.7E