

Video Game Programing

Knowledge and Skills. [VIDE0GD2](#)

1 The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to: [VIDE0GD2.1](#)

- A** identify and demonstrate positive work behaviors and personal qualities needed to be employable; [VIDE0GD2.1A](#)
- B** demonstrate skills such as building a resume related to seeking and applying for employment; [VIDE0GD2.1B](#)
- C** create a career portfolio to document information such as work experiences, licenses, certifications, and work samples; and [VIDE0GD2.1C](#)
- D** compare and evaluate employment opportunities in the game programming industry. [VIDE0GD2.1D](#)

2 The student applies programming skills related to software development and computer programming. The student is expected to: [VIDE0GD2.2](#)

- A** develop software applications; [VIDE0GD2.2A](#)
- B** analyze the basic programming structure of application and be able to debug, compile, and run an application; [VIDE0GD2.2B](#)
- C** create, name, and assign values to variables; [VIDE0GD2.2C](#)
- D** create custom methods that can return values and take parameters; [VIDE0GD2.2D](#)
- E** apply common built-in objects and reference types; [VIDE0GD2.2E](#)
- F** apply common programming statements to implement flow control, looping, and exception handling; [VIDE0GD2.2F](#)
- G** create, initialize, and use collections; and [VIDE0GD2.2G](#)
- H** design and create custom class-constructors and use the object-oriented techniques of inheritance, abstraction, polymorphism, and encapsulation. [VIDE0GD2.2H](#)

3 The student applies game development skills. The student is expected to: [VIDE0GD2.3](#)

- A** demonstrate significant understanding of game development tools including graphic design, game engines, animation, editors, and programing [VIDE0GD2.3A](#)
- B** apply core programming logic and techniques that are used in building games; [VIDE0GD2.3B](#)
- C** identify the code, structure, and layout of a fully functional role-playing game; [VIDE0GD2.3C](#)

- D create and customize new game elements such as characters, items, chests, quests, and monsters; [VIDE0GD2.3D](#)
 - E create enhancements to the combat engine logic with role-playing game; [VIDE0GD2.3E](#)
 - F research the inner workings of the role-playing game system, for the purpose of modifying simulated game actions; and [VIDE0GD2.3F](#)
 - G describe how a two-dimensional tile-based rendering and collision system works to create maps in a game. [VIDE0GD2.3G](#)
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4 The student applies creativity, innovation, and critical-thinking skills to video game programming methodology. The student is expected to: [VIDE0GD2.4](#)

- A demonstrate the ability to enhance existing game program(s) by customizing screens, adding levels, adding characters, and adding graphics; [VIDE0GD2.4A](#)
 - B create, design, and program original working game features; [VIDE0GD2.4B](#)
 - C explain how separated game logic fits together to form a cohesive game application; [VIDE0GD2.4C](#)
 - D critique beta applications and provide solutions to fix bugs and ensure performance; [VIDE0GD2.4D](#)
 - E conduct a self-evaluation and discuss findings with peers [VIDE0GD2.4E](#)
 - F compare projects with the required established game specifics; and [VIDE0GD2.4F](#)
 - G interpret technical and increasingly complex programming instructions in order and in detail. [VIDE0GD2.4G](#)
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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: [VIDE0GD2.5](#)

- A demonstrate the concepts of the original game and conduct in-class presentations including demonstration of original game concepts; [VIDE0GD2.5A](#)
 - B analyze and solve program errors individually or in teams and collaborate with classmates in problem solving and debugging program errors; and [VIDE0GD2.5B](#)
 - C apply technical writing skills to explain game design concepts, document programming logic, and document development processes [VIDE0GD2.5C](#)
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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: [VIDE0GD2.6](#)

- A review and research websites, wiki's, and blogs for appropriate content, ideas, and best practices to engage other users; and [VIDE0GD2.6A](#)
 - B investigate websites to explain concepts learned and to reference coding syntax. [VIDE0GD2.6B](#)
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7 The student applies engineering, physics, and mathematical concepts critical to game development. The student is expected to: [VIDE0GD2.7](#)

- A discuss and describe the principles of software engineering design within complex functional games; [VIDE0GD2.7A](#)

- B** apply the principles of software engineering to enhance a complex functional game including multiple movements and multiple controls; [VIDE0GD2.7B](#)
- C** apply the principles of software engineering within a complex fully-functional game/bug free program; [VIDE0GD2.7C](#)
- D** reverse engineer existing game functionality to understand game design; and [VIDE0GD2.7D](#)
- E** demonstrate the use of mathematics and physics to evaluate behavior in an existing game to enhance core logic. [VIDE0GD2.7E](#)