



High School Computer Science Game Development

Elective

Programming Language:

GodotScript

Software used in Course:

Godot

Supported Devices

Mac
Windows

Instructional Models:

Direct Instruction
Instructional Scolding
Use of Learning Objectives
Relevant Vocabulary
Bloom's Taxonomy or Questions
Inquiry-Based Instruction
Project-Based Instruction
Cooperative Learning
Independent Study

Supported Learning Models:

Classroom
Blended
Hybrid
Synchronous
Asynchronous

Standards Aligned:

National and State
Computer Science
Standards

Reinforces:

Math
ELA
Social-Emotional Learning

Course Description

Engage with game development processes through text-based coding to learn the fundamentals of game theory and game design. Learn game theory, game psychology, and gaming constructs. Explore physics interactions, security measures, and troubleshooting techniques. Unplugged and Digital Citizenship lessons focus on applications, ethical behavior, and STEM careers in the gaming industry. At the end of this course, students will be able to navigate the Godot gaming environment, have an understanding of industry careers and ethical considerations, and be able to create their own games using game design principles.

Learning Objectives

Each lesson plan is designed to enable students to achieve specific learning outcomes related to course aligned computer science competencies. For example, at the end of this course students will be able to:

- Analyze the evolution of video game culture while considering psychological and other revolutionary innovations relative to game design.
- Analyze and explain components of a video game by decomposing scenes and scripts into their individual nodes and functions.
- Use creative expression to iteratively develop a video game and implement game enhancements, such as lives and levels.
- Describe the effects video games have on individuals and the impacts that can transpire across real-world disciplines in modern society.
- Apply tools and strategies to debug a video game and conduct usability testing to increase quality and equity for users.
- Describe how various security issues might compromise video games and how to avoid them.