STRANDS AND STANDARDS

GAME DEVELOPMENT FUNDAMENTALS 2

Course Description

This course is designed to provide students with knowledge and project-based experience of fundamental gaming development concepts relating to STEM. These concepts include game design, scripting, creation of digital assets, graphic resources, animations, understanding hardware, problem solving, critical thinking, collaboration, and project management.

Intended Grade Level	9-12
Units of Credit	0.5
Core Code	35.02.00.00.046
Concurrent Enrollment Core Code	35.02.00.13.046
Prerequisite	Game Development Fundamentals 1, Computer Programming 1 (recommended)
Skill Certification Test Number	State Skills Exam – Coming soon! Unity Certified Developer
Test Weight	0.5
License Type	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1 or	Programming & Software Development
Endorsement 2	Multimedia

STRAND 1

Project based game development: Game Development Life Cycle-Students will create a game using the Game Development Life Cycle.

Standard 1

Implement Project Management—Students will implement project management skills in developing a game.

- Understand the difference between waterfall and iterative development
- Create an analog or digital prototype version of a game
- Work in a team
- Utilize project management skills

Standard 2

Game Concept Development—Students will be able to develop and game concept.

- Create a game proposal - "Pitch Document"
- Develop a concept with considerations for plan, cost (not a budget, but cost to student and time outside of class), and project hours.

Standard 3

Pre-Production (Design)—Students will be design documents as part of the Pre-Production (Design) of the game.

- Write a script - writing the storyline script
- Create storyboards
- Design concept of the game
- Select a game engine
- Plan game play mechanics
- Put together a comprehensive Game Design Document detailing the game's goals
- Plan level designs, rooms
- Sketch and plan characters
- Build an overall blueprint

Standard 4

Production (Create)—Students will be able to create the assets and incorporate them in a game.

- Create a prototype of game
- Perform alpha testing (internal testing)

STRAND 2

Communication Features and Game Interface Design. Students will review communication features and game interface design.

Standard 1

Aesthetic Game Design Components—Students will be able to explain and implement key aesthetic (visual) components of game design being:

- Animation
- Sprites or 3D models (wireframe)
- Environment (Player view, surroundings, camera, lighting)
- Audio
- User Interface

Standard 2

Functional Game Design Components—Students will explain and implement key functional components of game design:

- Physics (motion, gravity, collision, drag, etc.)
- User Input
- User Feedback
- Scripting

Standard 3

Design Usability and accessibility—Students will implement the design control concepts.

- Create usability in design control (implement the ability for the player to change movements, switching views, etc.)
- Describe accessibility (describe how game controls will accommodate users with disabilities and / or refer to what is used to play the game: touch screen, adaptive controller, motion control, etc.)
- Understand immersion (feeling part of the game, emotions, etc.)

Standard 4

Interface Elements—Students will implement classifications of interface elements.

- Understand diegetic elements (skins, weapons, overlays, dashboard of car, etc.)
- Understand non-diegetic elements (HUD, life meter, action bar, stats, etc.)
- Understand spatial elements (racing lines, directional arrows, floating texts, tool tips, etc)
- Understand meta elements (color filters, subtitles, environmental effects, etc.)

STRAND 3

Post- Production—Students will implement marketing strategies, engage in game testing, and release the game.

Standard 1

Beta Testing—Students will beta test games.

- Implement beta testing
- Receive feedback from beta testers
- Make needed adjustments

Standard 2

Marketing—Students will use marketing strategies to successfully advertise their game.

- Identify target market
- Research different marketing platforms
- Research and choose licensing options
- Understand the role of community management in marketing
- Develop advertisements using at least two different mediums (online, social media, print, etc.)
- Understand different sales (monetization) strategies (free download / paid content (freemium), upfront purchase, subscription model, etc.)

Standard 3

Game Release—Students will publish/release game(s).

- Research intellectual properties
- Explain piracy and copyright
- Understand the process of publishing a game to your platform

Standard 4

Game Maintenance—Students will provide for maintenance of the game.

- Develop strategies for post release content, bug fixes, and updates.

Performance Skills

- Design and create functional and aesthetic game assets.
- Perform tasks including project management and testing early versions of video games.
- Work as a team to develop a playable game using the Game Development Life Cycle.
- Use marketing strategies to promote the game.
- Develop strategies for post release content, bug fixes, and updates

Workplace Skills

- Communication
- Problem Solving

- Teamwork
- Critical Thinking
- Dependability
- Accountability
- Legal Requirements/Expectations