Perris Union High School District
Course of Study

A. COURSE INFORMATION

Course Title:
RCOE Intermediate Game Scripting
- [x] New
- [ ] Revised

If revised previous course name if changed

Transcript Course Code/Number:
(To be assigned by Educational Services)

Subject Area:
- [ ] Social Science
- [ ] English
- [ ] Mathematics
- [x] Laboratory Science
- [ ] World Languages
- [ ] Visual or Performing Arts
- [ ] College Prep Elective
- [ ] Other

Is this classified as a Career Technical Education course?
- [x] Yes **Concentrator**
- [ ] No

Grade Level
- [ ] MS
- [x] HS
- [ ] 5
- [ ] 6
- [ ] 7
- [ ] 8
- [ ] 9
- [ ] 10
- [x] 11
- [x] 12

Required for Graduation:
- [ ] Yes
- [x] No

Meets UC/CSU Requirements?
- [x] Yes "G"
- [ ] No

Was this course *previously approved by UC* for PUHSD?
- [ ] Yes
- [x] No

(Will be verified by Ed Services)

Credential Required to teach this course:
CTE: Information and Communication Technologies
55: Business, Industrial and Technology Education

To be completed by Human Resources only.

Signature 4/4/23 Date

CalPADS CODE 8141 Per RCOE

Meets "Honors" Requirements?
- [ ] Yes
- [x] No

Meets "AP" Requirements?
- [ ] Yes
- [x] No

Unit Value/Length of Course:
- [ ] 0.5 (half year or semester equivalent)
- [x] 1.0 (one year equivalent)
- [ ] 2.0 (two year equivalent)
- [ ] Other:

Submitted by: Dian Martin
Site: Educational Services
Date:03/14/2023

Approvals	Name/Signature	Date
Director of Curriculum & Instruction		4/4/23
Asst. Superintendent of Educational Services		4/4/23
Governing Board		

Course Instruction Plan (CIP)
Development Template

Course Title	RCOE Intermediate Game Scripting		
Engaging Title	Better Script… Better Game		
Essential Question	How can one start to make a video game?		
Pathway Title	Games and Simulation	**CALPADS Pathway Code**	175
CALPADS Course Sequence Code	8141 Intermediate Games & Simulation (Concentrator)	**Course Level**	☐ Intro ☐ Con ☐ Cap ☐ App Con
Pathway Duration	☐ 2-Yr ☐ 3-Yr ☐ 4-Yr	**Grade Level**	☐ 9 ☐ 10 ☐ 11 ☐ 12
Total Hours 165	**Classroom** 165	**CC/CVE**	N/A
RCOE Course Code	INF-175D-02-02	**Transcript Abbrev.**	INF-175D-02-02
A-G	G	**Date Approved**	3/2/2023
Articulated	☐ Yes ☐ No	**Institution**	RCC Norco
Articulated Course Title	*Pending - Targeted Articulation* GAM-4A - Game Scripting Discipline: Multimedia (Game Development) Cross-listed Discipline: Computer Information Systems		

Course of Study/Pathway	
Introduction	Systems Programming I: Fundamentals of Programming (*separate pathway; prerequisite*)
Concentrator	Game Scripting
Capstone	Advanced Game Scripting
Applied Concentrator	Systems Programming II: Python Programming (*separate pathway; recommended*)

O*Net Codes			
Code	15-1253.00	**Title**	Software Quality Assurance Analysts and Testers
Code	15-1251.00	**Title**	Computer Programmer
Code	15-1252.00	**Title**	Software Developer
Code	15-1255.01	**Title**	Video Game Designers
Code	11-1021.00	**Title**	General and Operations Manager
Code	11-1011.00	**Title**	Chief Executives

Course Description

RCOE Intermediate Game Scripting allows students to work in teams to develop games or simulations. Students will learn skills such as storyboarding, plot, flow, and using functions. Learning how to implement standard game/simulation strategy and rules of play as well as integrating mixed media appropriate to the game design/simulation will be included. Other topics include design specifications, delivery, rules of play, navigation functionality, scoring, and other special features.

RCC DESC - A first course in programming for games stressing fundamental programming principles. Covers the logic structures and design paradigms that allow for fundamental interactions in digital games
Course Overview/Narrative
This course introduces students to the creation of games, with the focus on computer programming with an emphasis on games. Students will learn the fundamentals of programming and problem solving with an emphasis on game programming using an industry-standard language C#, as well as learning an industry standard game engine Unity3D to create and program games and simulations. Students will also be able to put their computer programming knowledge towards business, science, and mathematics.
Course Theme
Designing & Programming a Video Game in Today's Workforce

Textbooks			
Title # 1	Introduction to Game Design, Prototyping, and Development: From Concept to Playable Game with Unity and C#	**Edition/Year**	3rd (2022)
Author(s)	Jeremy Gibson Bond	**Publisher**	Addison-Wesley Professional
Website	Pearson Publishing		
Title # 2	Unity Learn - Create with Code	**Edition/Year**	Online Learning Tool
Author(s)	Unity	**Publisher**	Unity
Website	https://learn.unity.com/course/create-with-code		

Methods of Instruction:

Methods of instruction used to achieve student learning outcomes may include, but are not limited to, the following activities:

- Lectures/presentations/demonstrations which both disseminate information and pose problems in game design.
- Guest speakers/lecturers - invited to class to discuss topics in the field of simulation and computer game development.
- Discussion, presentation and detailed examination of successful games including genres, strategies, storytelling, level design, gameplay, user interface design and related business aspects.
- Showing films or demonstrating video and online games, distributing handouts, and/or using electronic or computer-based media in order to reinforce understanding of concepts related to simulation and computer game development.
- Cooperative/collaborative learning tasks and activities designed to assist students in activating, simulating, and acting upon theoretical and applied concepts in game design.
- Individual conferences in order to evaluate and advise students on original gaming projects.
- Computer-assisted and/or web-enhanced instruction which reinforces the course content.

Methods of Evaluation:

Students will be evaluated for progress in and/or mastery of student learning outcomes using methods of evaluation which may include, but are not limited to, the following activities:

- Quizzes/examinations designed to assess students' ability to recall, critically analyze and apply key concepts and course content.
- Extensive research and writing assignments related to specific genres of computer games and presentation of findings to the class.
- Critical analysis of various digital and non-digital games.
- Presentation of oral reports or preparation of written reports on a specific game's design.
- Student teams working on the original design and development of a Pitch Document and prototyping processes.
- Participation and regular attendance as required by the instructor to ensure progress in mastering the course content and participation in collaborative learning projects.
- Oral presentations or written reports on current events in the video game industry.
- Final examination designed to assess students' mastery of the essential concepts explored in the course.

Units of Instruction

Unit 1 Title	Integrated Development Environments
Unit 1 Engaging Title	Understanding the Game Development Industry
Unit 1 Essential Question	What do you use to create a game? How much do you get paid for knowing these tools?
Unit 1 Description (3-5 Sentences)	Students will learn about different software, programming languages, and game engines that are currently industry standard with game development. Research will be conducted to learn about what types of game engines are used, what languages are used within these engines, and why we will be using Unity 3D. After understanding what game engines are, and the current industry standards, students will be introduced to Unity 3D game engine and learn the details of its interface.
Unit 1 Overview/Narrative	Understanding current game development industry practices, and the interface of the course's main engine, Unity.
Unit 1 Theme	What it takes to be in the game development industry

Unit 1 Key Assignment	• Research Project
	• Students research different game development / programming job positions
	  ○ https://www.onetonline.org/
	  ○ https://www.indeed.com/
	  ○ Google Search (Followed by keyword "Jobs")
	  ○ Company / Industry websites
	• Students will create a presentation and summarize
	  ○ Responsibilities
	  ○ Requirements
	  ■ Education / Certification / Experience
	  ○ Games Engines
	  ○ Programming Languages
	  ○ Salary
	  ○ Outlook
	• Students will then present their project to the class to generate more student knowledge on industry jobs and standards for Game Development.

Unit 1 Pathway Standard(s)	**D1.0** Identify and describe critical game and simulation studies, the resulting societal impact, and the management, industry, and career requirements.
Unit 1 Pathway – Performance Indicator(s)	**D1.1** Categorize the different gaming genres and gaming systems. **D1.6** Examine and categorize the significant processes in the production of interactive games. **D1.9** Describe the impact of the game and simulation industry on the economy and become familiar with popular game tools and different gaming engines.
Unit 1 Anchor Standard(s)	**3.0** Career Planning and Management: Integrate multiple sources of career information from diverse formats to make informed career decisions, solve problems, and manage personal career plans.

	6.0 Health and Safety: Demonstrate health and safety procedures, regulations, and personal health practices and determine the meaning of symbols, key terms, and domain-specific words and phrases as related to the Information and Communication Technologies sector workplace environment				
Unit 1 Anchor – Performance Indicators	**3.4** Research the scope of career opportunities available and the requirements for education, training, certification, and licensure. **3.5** Integrate changing employment trends, societal needs, and economic conditions into career planning. **6.2** Interpret policies, procedures, and regulations for the workplace environment, including employer and employee responsibilities.				
Unit 1 Curricular Resources	PART I Game Design and Paper Prototyping - Chapter 1 Thinking Like a Designer (Introduction to Game Design, Prototyping, and Development, 3rd edition) Unity Learn - Lesson 1.1 - Start your 3d Engines				
Unit 1 Total Hours	10	**Classroom**	10	**CC/CVE**	0

Unit 2 Title	Game Development Basics
Unit 2 Engaging Title	Game Engine Basics
Unit 2 Essential Question	How do I make sense of all these features?
Unit 2 Description (3-5 Sentences)	In this unit, students will start to learn & use some of the more prominent features offered in the Unity game engine. Some examples include: adding & texturing primitive objects, navigating & integrating objects assets, terrain-creation tools, physics, particle systems, and User-Interface (UI) tools. Students will learn how to properly organize & personalize their layout of the interface, and the specific components within the windows of the interface.
Unit 2 Overview/Narrative	Create your first Video Game level with Unity 3D tools using placeholders, textures, Game space, while understanding how these impact a game's loading time & performance.
Unit 2 Theme	Power Up your Level Game with Unity 3D
Unit 2 Key Assignment	Design and/or Create a traversable level using Unity Student Plan: • Recognize engine terrain creation tools, • Integrating physics / differentiating object components in the level design and character controller. • Provide & Use assets from online resources while organizing item placement & inventory within the Assets folder to industry development standards. • Create a customized UI screen with Unity Engine UI tools.
Unit 2 Pathway Standard(s)	**D2.0** Demonstrate an understanding of game and simulation analysis, design, standard documentation, and development tools.
Unit 2 Pathway – Performance Indicator(s)	**D2.5** Know how to use tools and software commonly used in game/simulation development and become familiar with popular game tools **D2.9** Demonstrate an understanding of interface design, hardware constraints on games, including processors and I/O devices, and nonhardware constraints.
Unit 2 Anchor Standard(s)	**5.0** Problem Solving and Critical Thinking: Conduct short, as well as more sustained, research to create alternative solutions to answer a question or solve a problem unique to the Information and Communication Technologies sector using critical and creative thinking, logical reasoning, analysis, inquiry, and problem-solving techniques. **10.0** Technical Knowledge and Skills: Apply essential technical knowledge and skills common to all pathways in the Information and Communication Technologies sector, following procedures when carrying out experiments or performing technical tasks
Unit 2 Anchor – Performance Indicators	**5.3** Use systems thinking to analyze how various components interact with each other to produce outcomes in a complex work environment. **10.10** Manage files in a hierarchical system. **10.11** Know multiple ways in which to transfer information and resources (e.g., text, data, sound, video, still images) between software programs and systems.
Unit 2 Curricular Resources	PART I Game Design and Paper Prototyping - Chapter 2 Game Analysis Frameworks / Chapter 3 The Layered Tetrad / Chapter 4 The Inscribed Layer / Chapter 5 The Dynamic Layer / Chapter 6 The Cultural Layer (Introduction to Game Design, Prototyping, and Development, 3rd edition)

Unit 2 Total Hours	35	**Classroom**	35	**CC/CVE**	0

Unit 3 Title	Object Oriented Programming
Unit 3 Engaging Title	Let's give our objects behavior!
Unit 3 Essential Question	How does C# programming integrate with Unity?
Unit 3 Description (3-5 Sentences)	This unit focuses on how the C# programming language ties in with the Unity game engine. Students will understand the difference between the engine on its own, the C# programming language within computer programming, and how Unity utilizes C# with its own terms & library. Students will learn how to create a script within Unity, navigate the Microsoft Visual Studio IDE with their Unity projects, and how to attach these scripts to individual objects. This will also compare students' previous understanding of intro programming fundamentals and how they apply to C#.
Unit 3 Overview/Narrative	Integrate computer programming with Unity tools & objects. Understand how to give objects behavior with code by manipulating attributes, inheritance and components.
Unit 3 Theme	Object Oriented Programming - Sharing is Caring
Unit 3 Key Assignment	Students will be provided with a pre-existing template that contains already established errors. Students must evaluate, debug, and create a simple console program with C# scripts in Unity. • Display print statements in the console from different scripts ○ Scripts are attached to specific objects • Students will classify and fix errors by reading error statements, then commenting what error they fixed & how they recognized it. • Students must identify and list the components, attributes, and inheritance of such objects and how they were included in their programming control and event strategies. The final product would be an error-free program that would have scripts attached to the correct objects and would display print statements in the console.
Unit 3 Pathway Standard(s)	**D2.0** Demonstrate an understanding of game and simulation analysis, design, standard documentation, and development tools. **D7.0** Acquire and apply appropriate programming skills for rendering a single player or multi user game or simulation project, including program control, conditional branching, memory management, scorekeeping, timed event strategies, and implementation issues.
Unit 3 Pathway – Performance Indicator(s)	**D2.5** Know how to use tools and software commonly used in game/simulation development and become familiar with popular game tools and different gaming engines. **D7.3** Code and test programs.
Unit 3 Anchor Standard(s)	**5.0** Problem Solving and Critical Thinking: Conduct short, as well as more sustained, research to create alternative solutions to answer a question or solve a problem unique to the Information and Communication Technologies sector using critical and creative thinking, logical reasoning, analysis, inquiry, and problem-solving techniques.
Unit 3 Anchor – Performance Indicators	**5.2** Solve predictable and unpredictable work-related problems using various types of reasoning (inductive, deductive) as appropriate. **5.3** Use systems thinking to analyze how various components interact with each other to produce outcomes in a complex work environment.

	5.6 Know the available resources for identifying and resolving problems.				
Unit 3 Curricular Resources	PART II Programming C# in Unity - Chapter 26 Classes / Chapter 27 Object-Oriented Thinking / Chapter 28 Data-Oriented Design (Introduction to Game Design, Prototyping, and Development, 3rd edition)				
Unit 3 Total Hours	10	**Classroom**	10	**CC/CVE**	0

Unit 4 Title	Variables and Data Types
Unit 4 Engaging Title	Create and Track Statistics in Gaming Environments
Unit 4 Essential Question	How do Video Games keep track of your statistics and inventory? What does it take to create your own?
Unit 4 Description (3-5 Sentences)	Students will learn to identify the steps it takes to keep track of vital statistics in Video Games and how the programming environment handles this information. Students will recognize different data types and reflect on the use of variables in Computer Science, emphasizing Video Game play. Students will design visual aids that are necessary to build Video Games and how these tools are used in the industry.
Unit 4 Overview/Narrative	Understand the process used to design & track game stats in programming.
Unit 4 Theme	Nurse, show me how to keep track of data - STAT!!

Unit 4 Key Assignment	Final Product: Students will pseudocode the 4 abilities (skill that the player-character is capable of doing & will positively impact their game) with all the necessary information: Name, Data Type, Initial Value, Updated Value, Cooldowns, Triggers, Etc. Students will then create a flow chart for two of these abilities and present this to the class. One Example would be:
	• Ultimate
	  ○ Strength (Integer, Initial Value - Varies by Character, Updated Value - +20 Points)
	  ○ Health (Integer, Initial Value - Varies by Character, Updated Value - +20 Percent)
	  ○ Regeneration (Boolean, Initial Value is False, Updated True)
	• Flow Chart Example
	
	This will integrate the concepts students learned in Systems Programming 01 - Fundamentals of Programming course to plan their code with visual layout & decomposition using pseudocoding & flowcharting, which will tie into the following unit.

Unit 4 Pathway Standard(s)	**D3.0** Create a working game or simulation individually or as part of a team. **D6.0** Explain the role and principles of event modeling and interface design and apply those principles in a game/simulation design and project.
Unit 4 Pathway – Performance Indicator(s)	**D3.1** Create a storyboard describing the essential elements, plot, flow, and functions of the game/simulation. **D6.5** Understand the use of inventory systems in game design.
Unit 4 Anchor Standard(s)	**4.0** Technology: Use existing and emerging technology, to investigate, research, and produce products and services, including new information, as required in the Information and Communication Technologies sector workplace environment. **5.0** Problem Solving and Critical Thinking: Conduct short, as well as more sustained, research to create alternative solutions to answer a question or solve a problem unique to the Information and Communication Technologies sector using critical and creative thinking, logical reasoning, analysis, inquiry, and problem-solving techniques.

Unit 4 Anchor – Performance Indicators	**4.3** Use information and communication technologies to synthesize, summarize, compare, and contrast information from multiple sources. **5.4** Interpret information and draw conclusions, based on the best analysis, to make informed decisions. **5.5** Use a logical and structured approach to isolate and identify the source of problems and to resolve problems.				
Unit 4 Curricular Resources	PART II Programming C# in Unity - Chapter 20 Variables and Components (Introduction to Game Design, Prototyping, and Development, 3rd edition)				
Unit 4 Total Hours	10	**Classroom**	10	**CC/CVE**	0

Unit 5 Title	Logic Structures and Operators
Unit 5 Engaging Title	Understanding Flow Control in Video Games and why they are vital in design.
Unit 5 Essential Question	How do I make something happen WHEN I want it to happen?
Unit 5 Description (3-5 Sentences)	In programming, one of the most important concepts to understand is how to trigger an event to happen when a condition is met. Students will learn different methods used to check for all different types of conditions and scenarios that can happen in a game, and how to determine what strategy to use in each scenario. Students will understand repetition methods with looping, and checking for specific conditions using operators.
Unit 5 Overview/Narrative	Understand the use of conditional statements, looping structures, and operators in Video Game Design. Why are they necessary?
Unit 5 Theme	IF Steve has 3 Iron Bars, THEN he can make a bucket, ELSE he needs to start Mining
Unit 5 Key Assignment	Students will be provided a template in Unity that will have character classes and values. Students must then recall and integrate the information from Unit 04 and design and create the two abilities that they created flowcharts for. Students must: • Create all the necessary Variables with the correct data types. • Initialize these variables based on Character Class (which is in the given template). • Create timers and triggers for their abilities. • Update their variables when abilities are triggered. • Provide comments for everything. The final product would be a working program where when the abilities are triggered, there will be print statements in the console providing the initial and updated states of the variables and the values of the timers during ability activation.
Unit 5 Pathway Standard(s)	**D4.0** Identify, describe, and implement standard game/simulation strategy and rules of play.
Unit 5 Pathway – Performance Indicator(s)	**D4.4** Understand the process of creating and designing player actions. **D4.7** Describe rule creation elements of player challenge.
Unit 5 Anchor Standard(s)	**2.0** Communications: Acquire and accurately use Information and Communication Technologies sector terminology and protocols at the career and college readiness level for communicating effectively in oral, written, and multimedia formats. **5.0** Problem Solving and Critical Thinking: Conduct short, as well as more sustained, research to create alternative solutions to answer a question or solve a problem unique to the Information and Communication Technologies sector using critical and creative thinking, logical reasoning, analysis, inquiry, and problem-solving techniques.

Unit 5 Anchor – Performance Indicators	**2.4** Demonstrate elements of written and electronic communication such as accurate spelling, grammar, and format. **5.7** Work out problems iteratively and recursively. **5.8** Create and use algorithms and solve problems.				
Unit 5 Curricular Resources	PART II Programming C# in Unity - Chapter 21 Boolean Operations and Conditionals (Introduction to Game Design, Prototyping, and Development, 3rd edition)				
Unit 5 Total Hours	10	**Classroom**	10	**CC/CVE**	0

Unit 6 Title	Functions
Unit 6 Engaging Title	Functions - Because it is better to work Smarter than Harder
Unit 6 Essential Question	Would you rather search through thousands of lines of code to change a mistake you made or change them all in a single step?
Unit 6 Description (3-5 Sentences)	Students understand the basics of how to implement conditions and events in their game, but how do they stop code from repeating constantly? This unit focuses on taking code and condensing it into "functions", which contributes to code organization and a more optimized repetitive process. With functions, they will also understand how to pass information back & forth, and why it's a more efficient process than what we have done previously. This unit will also recall previously learned concepts of functions from previous course(s).
Unit 6 Overview/Narrative	Learn how to create functions that will save you time and effort. Design and implement more effective Video Games.
Unit 6 Theme	Why Functions? Because spaghetti code is not buona 🤌🚫!!

Unit 6 Key Assignment	Students will finish an incomplete prototype of a 3D platformer started as a class
	• Determine & integrate rules which expand on what was already created as a class, as a finished & playable prototype.
	  ○ Provide win & loss conditions
	  ○ Recycling code for overlapping usage
	  ○ Provide objects that both call upon functions within the same script, and call functions from other objects using script references. Students demonstrate ability to differentiate, determine, and assemble function types & calls.
	  ▪ different uses of function calls with parameter / argument usage
	  ▪ object reference having a direct impact on the prototype gameplay.
	  • *ie. damaging an object's health, utilizing a game manager script, score increase, etc*
	• Assessment will be based on user's gaming experience, which will include, but not limited to:
	  ○ Gameplay
	  ○ Art design & graphics
	  ○ Challenge (flow)
	  ○ Coding
	
	The final product would be a completed and playable game utilizing conditionals, multiple different function calls, and flow control which would provide the end-user with a pleasurable gaming experience (which would be whole-class peer review).

Unit 6 Pathway Standard(s)	**D2.0** Demonstrate an understanding of game and simulation analysis, design, standard documenta-tion, and development tools. **D7.0** Acquire and apply appropriate programming skills for rendering a single player or multi user game or simulation project, including program

	control, conditional branching, memory management, scorekeeping, timed event strategies, and implementation issues.				
Unit 6 Pathway – Performance Indicator(s)	**D2.10** Make informed decisions about game physics: how the game world works, how the players interact with the game world, and how the players interact with one another. **D7.5** Implement enhanced program structures.				
Unit 6 Anchor Standard(s)	**2.0** Communications: Acquire and accurately use Information and Communication Technologies sector terminology and protocols at the career and college readiness level for communicating effectively in oral, written, and multimedia formats. **5.0** Problem Solving and Critical Thinking: Conduct short, as well as more sustained, research to create alternative solutions to answer a question or solve a problem unique to the Information and Communication Technologies sector using critical and creative thinking, logical reasoning, analysis, inquiry, and problem-solving techniques.				
Unit 6 Anchor – Performance Indicators	**2.8** Understand the principles of a customer-oriented service approach to users. **5.9** Deconstruct large problems into components to solve. **5.12** Apply the concepts of Boolean logic to decision making and searching.				
Unit 6 Curricular Resources	PART II Programming C# in Unity - Chapter 24 Functions and Parameters (Introduction to Game Design, Prototyping, and Development, 3rd edition)				
Unit 6 Total Hours	20	**Classroom**	20	**CC/CVE**	0

Unit 7 Title	Game Engine Architecture
Unit 7 Engaging Title	Teamwork makes the game work
Unit 7 Essential Question	Do you have what it takes to fix a broken video game? Can you work well in a team environment?
Unit 7 Description (3-5 Sentences)	Students will exhibit the ability to deconstruct and analyze a broken product. Students will demonstrate true understanding of how and why games work and the ability to fix them and/or make them even better. Working in a group setting will help them understand what it takes to collaborate, discuss, and delegate tasks needed to solve a problem. This will also teach students about the process of working in a group on one Unity project, also known as "Source Control" in Computer Science. Students will then present their finished product with full confidence in their abilities.
Unit 7 Overview/Narrative	Learn how to debug and document code in a video game and carry out tasks in a group setting. Deconstruct a broken video game and assemble it back into a finished and working product.
Unit 7 Theme	If it is BROKE, then FIX it
Unit 7 Key Assignment	Students will be given a previously working program that is intentionally broken by the instructor. This program will be more robust and sophisticated based on previous projects and will test how much they have learned up to this point. A final product will consist of the following tasks: • As a team, students will deconstruct a broken project • Students will assign design and document a plan to effectively fix errors and code necessary to assemble an alpha release of a product ○ Types of plans: Job Tasks, "Divide and Conquer", Group Review & Evaluation, Etc • Students must identify and determine errors in different aspects & categories. They will be adding these errors to the existing plan of action. • Students will then present a reflection on their process of repairing the game, which will include the strategies & approaches they used. • Students will demonstrate proficiency in each category of the Unit 07 Overview/Narrative.
Unit 7 Pathway Standard(s)	**D2.0** Demonstrate an understanding of game and simulation analysis, design, standard documenta-tion, and development tools. **D3.0** Create a working game or simulation individually or as part of a team.
Unit 7 Pathway – Performance Indicator(s)	**D2.1** Demonstrate an understanding of the vocabulary for discussing games and play by listing and describing the general procedure and requirements of game and simulation design. **D2.6** Demonstrate an understanding of the techniques used to evaluate game mechanics, game play, flow, and game design **D3.4** Present the game or simulation.
Unit 7 Anchor Standard(s)	**7.0** Responsibility and Flexibility: Initiate, and participate in, a range of collaborations demonstrating behaviors that reflect personal and professional responsibility, flexibility, and respect in the Information and Communication Technologies sector workplace environment and community settings

	9.0 Leadership and Teamwork: Work with peers to promote divergent and creative perspectives, effective leadership, group dynamics, team and individual decision making, benefits of workforce diversity, and conflict resolution such as those practiced in the Future Business Leaders of America and SkillsUSA career technical student organization				
Unit 7 Anchor – Performance Indicators	**7.3** Understand the need to adapt to changing and varied roles and responsibilities. **7.4** Practice time management and efficiency to fulfill responsibilities **9.2** Identify the characteristics of successful teams, including leadership, cooperation, collabora-tion, and effective decision-making skills as applied in groups, teams, and career technical student organization activities **9.3** Understand the characteristics and benefits of teamwork, leadership, and citizenship in the school, community, and workplace setting.				
Unit 7 Curricular Resources	PART I Game Design and Paper Prototyping - Chapter 7 Acting Like a Designer / Chapter 8 Design Goals / Chapter 9 Paper Prototyping / Chapter 11 Math and Game Balance / Chapter 12 Guiding the Player / Chapter 13 Puzzle Design (Introduction to Game Design, Prototyping, and Development, 3rd edition)				
Unit 7 Total Hours	15	**Classroom**	15	**CC/CVE**	0

Unit 8 Title	FINAL PROJECT
Unit 8 Engaging Title	If you can think it, you can make it.
Unit 8 Essential Question	What will it take to bring your game idea to life?
Unit 8 Description (3-5 Sentences)	Students will assemble and create their own idea for a game. Students will be integrating the Software Development Life Cycle (learned in a previous course) with their own idea for a game and will experience going through a prototyping game development process. Documentation, milestone progress, design methods, and post-mortem will all be integrated into this project.
Unit 8 Overview/Narrative	Show the world that you have what it takes to be a Video Game designer. Identify, Adapt, and Overcome the hurdles of Game Design.
Unit 8 Theme	GAME ON or GAME OVER?
Unit 8 Key Assignment	Students, in groups or individually, will Design and Create a functioning prototype either original or based on an existing Intellectual Property (IP) from a blank project. Students will be using the Software & Game Development Life Cycle, which includes: • planning, documentation, design, development, testing, implementation, analysis, and maintenance. Students will also have a concept design document, a team contract (including solo projects), and present milestones biweekly of their progress. The final product will be a playable prototype game utilizing all topics covered in class units, and demonstrates flow control which would provide the end-user with a pleasurable gaming experience. Students will then add this project to an industry-standard portfolio (*Github, Itch.io, portfolio website*).
Unit 8 Pathway Standard(s)	**D2.0** Demonstrate an understanding of game and simulation analysis, design, standard documenta-tion, and development tools. **D3.0** Create a working game or simulation individually or as part of a team.
Unit 8 Pathway – Performance Indicator(s)	**D2.2** Describe the game development life cycle. **D2.3** Develop a game design document or blueprint. **D3.2** Create a design specification document to include interface and delivery choices, rules of play, navigation functionality, scoring, media choices, start and end of play, special features, and development team credits. **D3.3** Using simple game development tools, create a game or simulation.
Unit 8 Anchor Standard(s)	**5.0** Problem Solving and Critical Thinking: Conduct short, as well as more sustained, research to create alternative solutions to answer a question or solve a problem unique to the Information and Communication Technologies sector using critical and creative thinking, logical reasoning, analysis, inquiry, and problem-solving techniques. **7.0** Responsibility and Flexibility: Initiate, and participate in, a range of collaborations demonstrating behaviors that reflect personal and professional responsibility, flexibility, and respect in the Information and Communication Technologies sector workplace environment and community settings

	9.0 Leadership and Teamwork: Work with peers to promote divergent and creative perspectives, effective leadership, group dynamics, team and individual decision making, benefits of workforce diversity, and conflict resolution such as those practiced in the Future Business Leaders of America and SkillsUSA career technical student organization				
Unit 8 Anchor – Performance Indicators	**5.10** Use multiple layers of abstraction. **7.5** Apply high-quality techniques to product or presentation design and development. **9.7** Participate in interactive teamwork to solve real Information and Communication Technologies sector issues and problems.				
Unit 8 Curricular Resources					
Unit 8 Total Hours	40	**Classroom**	40	**CC/CVE**	0

College and Career Transition Plan (CCTP) Unit

Unit 9 Title	RCOE College and Career Transition Plan (CCTP)
Unit 9 Engaging Title	Dude, where's my job?
Unit 9 Essential Question	Where will my decisions lead me to in life?
Unit 9 Description (3-5 Sentences)	This unit of instruction links student interests to potential careers through exploration and research. Students will develop a post-secondary career plan that identifies and maps out a course of action which incorporates college and career opportunities. Within the twelve (12) topics, students will complete interest surveys, career related documents (i.e., applications, resumes, letters of introduction, letters of recommendation), and mock interviews with the express goal of preparing students to graduate from high school academically and socially prepared for college, the workforce, and civic responsibility. Additionally, students will analyze the importance of financial literacy through topics such as credit, creating a budget, and saving and investing. **Lessons**: • Work, Job, and Career • The Career Plan • Job Applications (Portfolios – Part 1) • The Letter of Introduction (Portfolios – Part 2) • Resume (Portfolios – Part 3) • Letters of Recommendation (Portfolios – Part 4) • Interviewing • Career Research and Reflection • Financial Literacy (Part 1 – The Basics) • Financial Literacy (Part 2 – Credit) • Financial Literacy (Part 3 – Creating a Budget) • Financial Literacy (Part 4 – Saving and Investing)
Unit 9 Overview/Narrative	As a result of successfully completing this unit of instruction, students will be able to take part in complete important job search documentations such as an application, letter of introduction, resume, and letters of recommendations. Students will learn many job interview questions as well as what employers look for in answers and appearance. Lastly, students will become familiar with financial literacy and how it is applied to many life decisions such as how to read a pay stub, establishing credit, borrowing money, budgeting, saving, and investing.
Unit 9 Theme	To prepare for life after high school by mapping out each step needed to achieve college and career goals.
Unit 9 Key Assignment	1) **RCOE College and Career Transition Guide**: This project will incorporate the development of a 5-10 year career plan, preparing a portfolio (letter of introduction, resume, and letters of recommendation), and practicing job applications and mock interviews. 2) **Financial Literacy**: This project will include identifying elements and deduction on a paycheck, research loan options based on credit worthiness, creating a budget, and planning for retirement.

Unit 9 Pathway Standard(s)	**D1.0** Identify and describe critical game and simulation studies, the resulting societal impact, and the management, industry, and career requirements. **D2.0** Demonstrate an understanding of game and simulation analysis, design, standard documenta-tion, and development tools.				
Unit 9 Pathway – Performance Indicator(s)	**D1.3** Describe the role of play in human culture. **D1.5** Describe the business model commonly used in the game development industry. **D2.4** Understand the general principles of storytelling and the use of storyboarding in game design.				
Unit 9 Anchor Standard(s)	3.0 Career Planning and Management				
Unit 9 Anchor – Performance Indicators	3.1 Identify personal interests, aptitudes, information, and skills necessary for informed career decision making. 3.2 Evaluate personal character traits, such as trust, respect, and responsibility, and understand the impact they can have on career success. 3.4 Research the scope of career opportunities available and the requirements for education, training, certification, and licensure. 3.9 Develop a career plan that reflects career interests, pathways, and postsecondary options.				
Unit 9 - Curricular Resources	*The Job Hunting Handbook* (Dalstrom)				
Unit 9 - Total Hours	15	**Classroom**	15	**CC/CVE**	0

Course Assessments

1st Semester Common Assessment	

Narrative	Fill in the blank / Multiple choice assessment on terminology & code scenarios
	- Unity 3d Engine terms
	  - *Windows, Components, Objects, etc.*
	- Visual Studio C# / programming fundamental terms
	- Code examples
	  - *Explain statement / function depicted*
	  - *Explain what error is being shown*

Final Common Assessment	
Narrative	Students, in groups or individually, will Design and Create a functioning prototype either original or based on an existing IP from a blank project. Students will be using the Software Development Life Cycle, which includes: planning, analysis, design, development, testing, implementation, and maintenance. Students will also have a concept design document, a team contract (including solo projects), and present milestones biweekly of their progress. The final product will be a playable prototype game utilizing all topics covered in class units, and demonstrates flow control which would provide the end-user with a pleasurable gaming experience. Students will then add this project to an industry-standard portfolio (*Github, Itch.io, portfolio website*).