Perris Union High School District
Course of Study

A. COURSE INFORMATION

Course Title:
(limited to 34 characters with spaces in Infinite Campus)

RCOE Advanced eSports & Game Design

- [x] New
- [ ] Revised

If revised, the previous course name if there was a change

Transcript Course Code/Number:

(To be assigned by Educational Services if it's a new course)

CREDIT TYPE EARNED: **CALPADS CODE:**

Elective	8142

Subject Area:

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

Is this classified as a Career Technical Education course?

- [x] Yes
- [ ] No

If yes, which pathway does this course align to?
Pathway Name:

ICT Games and Simulation - Capstone

CTE CDE Code: 175

Grade Level(s)

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

Was this course *previously approved by UC* for PUHSD?

- [x] Yes
- [ ] No

(Will be verified by Ed Services)

Which A-G Requirement does/will this course meet?

G - Elective	[ ] Pending

Credential Required to teach this course:
To be completed by Human Resources only.

CTE Information and Communication Technologies
Single Subject: Business, Industrial and Technology Education

08/06/2024

Signature **Date**

Submitted by: Rebecca Beigle
Site: CMI
Date: 08/05/2024
Email: rebecca.beigle@puhsd.org

Unit Value/Length of Course:

- [ ] 0.5 (half-year or semester equivalent)
- [x] 1.0 (one-year equivalent)
- [ ] 2.0 (two-year equivalent)
- [ ] Other:

Approvals	Name/Signature	Date
Director of Curriculum & Instruction		08 / 06 / 2024
Asst. Superintendent of Educational Services		08 / 06 / 2024
Governing Board		

Course Instruction Plan (CIP)
2024-2025

Course Title	RCOE Advanced eSports & Game Design		
Pathway Title	ICT / Games and Simulation	**CALPADS Pathway Code**	175
CALPADS Course Sequence Code	8142	**Course Level**	☐ Intro ☐ Con ☑ Cap ☐ App Con
Pathway Duration	☐ 2-Yr ☑ 3-Yr ☐ 4-Yr	**Grade Level**	☐ 9 ☐ 10 ☑ 11 ☑ 12 ☑
Total Hours 180	**Classroom**	180	**CC/CVE** 0
RCOE Course Code	ICT-175-03-03	**Transcript Abbrev.**	ICT-175-03-03
A-G	G	**Date Approved**	07/30/2024
Articulated	☐ Yes ☑ No	**Institution**	
Articulated Course Title			
Course Status	☑ New ☐ Revision	**Previous Title**	

Course of Study/Pathway	
Introduction	RCOE Introduction to eSports and Game Design
Concentrator	RCOE Intermediate eSports and Game Design
Capstone	RCOE Advanced eSports and Game Design
Applied Concentrator	N/A

O*Net Codes			
Code	15-1255.01	**Title**	Video Game Designers
Code	15-1252.00	**Title**	Software Developers
Code	15-1299.05	**Title**	Information Security Engineers
Code	15-1212.00	**Title**	Information Security Analysts

Course Description

RCOE Advanced ESports and Game Design-build on the Introductory and Intermediate classes. This Advanced class focuses students on certifications in the high-growth technology fields of Cybersecurity, Artificial Intelligence, and Data Science via the CompTIA Tech+ modules. The content for this Advanced class follows the requirements needed for the CompTIA Tech+ certification; a prerequisite for the CompTIA Security+ certification (one of the most sought-after certifications in the hyper-growth field of Cybersecurity). At the end of this Advanced Class, students will have attained the CompTIA Tech+ certification and will have a strong foundation to pursue a career in either Cybersecurity, Artificial Intelligence, Game Design, and/or Data Science. They will also learn key soft skills of communication, teamwork, and leadership.

Textbooks			
Title # 1	Tech Pro	**Edition/Year**	2025
Author(s)	TestOut	**Publisher**	TestOut Corporation
Website	https://w3.testout.com		
Title # 2		**Edition/Year**	
Author(s)		**Publisher**	
Website			
Title # 3		**Edition/Year**	
Author(s)		**Publisher**	
Website			

Desktop Software and Applications	
Office	Microsoft; Word, Excel, PowerPoint, Visio, Google Suite
Operating Systems	Linux, Ubuntu, Windows 10, Windows 11
Virtual Machine	Oracle VM VirtualBox, VMware Workstation Pro

Units of Instruction

Unit 1 Title	Software, Applications, and Programs				
Unit 1 Engaging Title	You can see, you can interact, but you can't touch				
Unit 1 Essential Question	What are some essential tools you need to develop your game?				
Unit 1 Description (3-5 Sentences)	Students will learn and use essential applications, office tools, and various software that are crucial in today's digital landscape. They will gain hands-on experience and theoretical knowledge necessary for success in gaming and various professions. Upon completion of this unit, students will be able to install, configure, and use these for their purpose.				
Unit 1 Key Assignment	To demonstrate mastery in software, applications, and programs, students will: **Create a Game Proposal** Students form a team of three and present their game development proposal. The team will use Microsoft PowerPoint to create their presentation. The presentation will also embed other documents in real time: ● Proposal in Microsoft Word Document ● Component Excel Sheets Students will use the following tools to complete the project: ● Adobe Illustrator ● Adobe Photoshop Students will provide Recommendations for: ● Game Engine ● Other Game Development Tools Requires instructor's approval.				
Unit 1 Pathway Standard(s)	D2.0 Demonstrate an understanding of game and simulation analysis, design, standard documentation, and development tools.				
Unit 1 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.				
Unit 1 Anchor Standard(s)	2.0 Communications 10.0 Technical Knowledge and Skills 11.0 Demonstration and Application				
Unit 1 Anchor – Performance Indicators	2.4 Demonstrate elements of written and electronic communication such as accurate spelling, grammar, and format. 2.5 Communicate information and ideas effectively to multiple audiences using a variety of media and formats. 10.9 Use common industry-standard software and their applications including word processing, spreadsheets, databases, and multimedia software.				
Unit 1 Curricular Resources	TestOut TBA				
Unit 1 Total Hours	15	**Classroom**	15	**CC/CVE**	0

Unit 2 Title	Internet Highway				
Unit 2 Engaging Title	We are all connected Here				
Unit 2 Essential Question	What software may you use on your device to access the Internet? What are useful online tools you may use as a part of your game development?				
Unit 2 Description (3-5 Sentences)	Students will delve into the fundamental aspects of the Internet, providing them with a comprehensive understanding of its workings, key tools, and career opportunities within Internet technologies. Through a combination of theoretical knowledge and practical exercises, students will explore various facets of the Internet landscape, empowering them to navigate, utilize, and potentially pursue careers in game development and other fields. Upon completion of this unit, the student will be able to demonstrate an understanding of internet basics and web browsers.				
Unit 2 Key Assignment	To demonstrate an understanding of internet basics, web browsers, and internet service providers, students will: **Create a Web Browser Presentation** Students will form into teams of three and provide a presentation on a web browser of their choice. ● Create a step-by-step tutorial on web browser installation and configurations. ● The team will demonstrate it in class. ● Use Microsoft PowerPoint to create the presentation. Teams may not do a presentation on a browser that is already taken by another team.				
Unit 2 Pathway Standard(s)	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 2 Pathway – Performance Indicator(s)	D7.1 Identify functions of information processing describe basic network terminology and network security and demonstrate an understanding of operating systems, environments, and platforms.				
Unit 2 Anchor Standard(s)	10.0 Technical Knowledge and Skills 11.0 Demonstration and Application				
Unit 2 Anchor – Performance Indicators	10.5 Understand the major software and hardware components of a computer and a network and how they relate to each other. 11.1 Utilize work-based/workplace learning experiences to demonstrate and expand upon knowledge and skills gained during classroom instruction and laboratory practices specific to the Information and Communication Technologies sector program of study.				
Unit 2 Curricular Resources	TestOut TBA				
Unit 2 Total Hours	15	**Classroom**	15	**CC/CVE**	0

Unit 3 Title	Computer Hardware				
Unit 3 Engaging Title	Computer parts you can see, taste, and touch				
Unit 3 Essential Question	What do you think is the future architecture of your electronic device? What is the essential component of your computer for your game development environment?				
Unit 3 Description (3-5 Sentences)	After students learn and understand the main computer components, they will further their exploration of computer hardware, covering various components, storage types, peripheral devices, and system drivers essential for understanding and managing computer systems effectively. Through discussions and practical demonstrations, students will gain insights into the inner workings of computer hardware and develop proficiency in configuring, installing, and maintaining hardware components and drivers. Upon completion of this unit, the student will be able to install, update, and modify software that enables and supports the specific computer hardware.				
Unit 3 Key Assignment	To demonstrate understanding of computer, network, and cloud hardware and software, students will assemble, install, and configure components on a computer board. **Computer Assembly, Installation, and Configuration** Students will be able to assemble Components on a computer board and present a working system to the class. The project can be done with but not limited to: ● Personal Computer ● Raspberry Pi ● Cyber: Bot ● Arduino Kits Requirement: A Working System that will be able to perform one simple task.				
Unit 3 Pathway Standard(s)	D2.0 Demonstrate an understanding of game and simulation analysis, design, standard documentation, and development tools.				
Unit 3 Pathway – Performance Indicator(s)	D2.9 Demonstrate an understanding of interface design, hardware constraints on games, including processors and I/O devices, and nonhardware constraints.				
Unit 3 Anchor Standard(s)	10.0 Technical Knowledge and Skills 11.0 Demonstration and Application				
Unit 3 Anchor – Performance Indicators	10.5 Understand the major software and hardware components of a computer and a network and how they relate to each other. 10.7 Understand the SI (metric) prefixes commonly used in computing including, at least, kilo, mega, giga, and tera. 11.1 Utilize work-based/workplace learning experiences to demonstrate and expand upon knowledge and skills gained during classroom instruction and laboratory practices specific to the Information and Communication Technologies sector program of study.				
Unit 3 Curricular Resources	TestOut TBA				
Unit 3 Total Hours	15	**Classroom**	15	**CC/CVE**	0

Unit 4 Title	Operating Systems
Unit 4 Engaging Title	“No one cares what operating system you run as long as it stays up”. - Bruce Perens
Unit 4 Essential Question	What is the best Operating System to use for game development? Does it require more than one OS to accomplish the task?
Unit 4 Description (3-5 Sentences)	Students will explore more operating systems (OS), focusing on fundamental concepts, essential applications, file system management, and backup strategies. Through a combination of lectures and practical exercises, students will gain a comprehensive understanding of OS functionalities and develop skills necessary for effective OS utilization and data management. Upon completion of this unit, the student will be able to install, configure, and use the Operating System for various tasks.
Unit 4 Key Assignment	To demonstrate mastery over operating and file systems, students will install, configure, and update the OS on the Testout.com software. Students will : **Create an Operating System Presentation** Students will present their favorite Linux distros and Windows Operating Systems. The student will create a one-page presentation using Google Slides Including: ● OS Name ● Logo ● Company Name ● Year of distribution ● Features (Must include) ○ File System ○ Architecture ○ Bit ● Price Students will then present their operating system, clearly articulate their USP (unique selling proposition) to their peers, and get feedback.
Unit 4 Pathway Standard(s)	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 4 Pathway – Performance Indicator(s)	D7.1 Identify functions of information processing describe basic network terminology and network security and demonstrate an understanding of operating systems, environments, and platforms.
Unit 4 Anchor Standard(s)	10.0 Technical Knowledge and Skills 11.0 Demonstration and Application
Unit 4 Anchor – Performance Indicators	10.5 Understand the major software and hardware components of a computer and a network and how they relate to each other. 11.1 Utilize work-based/workplace learning experiences to demonstrate and expand upon knowledge and skills gained during classroom instruction and

	laboratory practices specific to the Information and Communication Technologies sector program of study.				
Unit 4 Curricular Resources	TestOut TBA				
Unit 4 Total Hours	15	**Classroom**	15	**CC/CVE**	0

Unit 5 Title	Networking				
Unit 5 Engaging Title	Connecting our Digital World				
Unit 5 Essential Question	Is it better to set up wired or wireless networks in your game development environment?				
Unit 5 Description (3-5 Sentences)	In this unit, students will master networking concepts, further their understanding of virtualization technologies, and navigate career pathways in the networking field. Through theoretical instruction and practical exercises, students will gain a deep understanding of virtualization concepts and opportunities for pursuing rewarding careers in networking. Upon completion of this unit, the student will be able to install and configure a type 2 hypervisor management tool.				
Unit 5 Key Assignment	To demonstrate understanding of networking concepts, students will: **Install a Small Working Network** Students will set up a hypervisor that allows their operating systems to communicate with one another. ● Use Microsoft Visio to create a network diagram. ● Set up and configure all devices used in the network. ● Set up and configure your VMs. ● Connect each device. ● Show their network in class. The network should be functional end to end.				
Unit 5 Pathway Standard(s)	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 5 Pathway – Performance Indicator(s)	D7.1 Identify functions of information processing describe basic network terminology and network security and demonstrate an understanding of operating systems, environments, and platforms.				
Unit 5 Anchor Standard(s)	10.0 Technical Knowledge and Skills 11.0 Demonstration and Application				
Unit 5 Anchor – Performance Indicators	10.5 Understand the major software and hardware components of a computer and a network and how they relate to each other. 10.7 Understand the SI (metric) prefixes commonly used in computing including, at least, kilo, mega, giga, and tera. 11.1 Utilize work-based/workplace learning experiences to demonstrate and expand upon knowledge and skills gained during classroom instruction and laboratory practices specific to the Information and Communication Technologies sector program of study.				
Unit 5 Curricular Resources	TestOut TBA				
Unit 5 Total Hours	15	**Classroom**	15	**CC/CVE**	0

Unit 6 Title	Database Fundamentals				
Unit 6 Engaging Title	“It's about who controls the information”. - Ben Kingsley (as Cosmo in Sneakers)				
Unit 6 Essential Question	What is the highest level of database normalization required in game development?				
Unit 6 Description (3-5 Sentences)	Students will master database concepts which cover essential concepts, types of databases, and the fundamentals of relational database management. Through hands-on exercises and theoretical instruction, students will gain proficiency in creating, modifying, and managing databases, as well as understanding the structure and principles of relational databases. Upon completion of this unit, the student will be able to create, modify, and update tables, queries, and reports in a database with data.				
Unit 6 Key Assignment	To demonstrate understanding of databases, students will: **Create a Game Database** Students will create a simple game database to store scores, inventory, and information about the program. Use Microsoft Word to present groups and data in the third normal form. Use Microsoft Visio to create the relationship diagram. Use Microsoft Access to create: ● Tables ● Queries ● SQL ● Report				
Unit 6 Pathway Standard(s)	D6.0 Explain the role and principles of event modeling and interface design and apply those principles in a game/simulation design and project. 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)	D6.5 Understand the use of inventory systems in game design. D7.1 Identify functions of information processing describe basic network terminology and network security and demonstrate an understanding of operating systems, environments, and platforms.				
Unit 6 Anchor Standard(s)	10.0 Technical Knowledge and Skills 11.0 Demonstration and Application				
Unit 6 Anchor – Performance Indicators	10.5 Understand the major software and hardware components of a computer and a network and how they relate to each other. 10.9 Use common industry-standard software and their applications including word processing, spreadsheets, databases, and multimedia software. 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 6 Curricular Resources					
Unit 6 Total Hours	15	**Classroom**	15	**CC/CVE**	0

Unit 7 Title	Software Development Fundamentals
Unit 7 Engaging Title	"Greetings, Programs!"
Unit 7 Essential Question	What kind of game does not require OO programming?
Unit 7 Description (3-5 Sentences)	Students will learn advanced software development concepts, which include essential concepts, programming constructs, and debugging techniques necessary for designing and building reliable and efficient software applications. Through a combination of theoretical lectures, practical programming exercises, and debugging scenarios, students will acquire fundamental skills in software development and problem-solving. Upon completion of this unit, the student will be able to write a simple game program using Python.
Unit 7 Key Assignment	To demonstrate an understanding of software development fundamentals, students will: **Create a Python Game** To demonstrate an understanding of software development fundamentals, students will create a simple game in Python and allow other students to play it in class. ● Form into a team of 3. ● Choose a game to create ● Create the game ● Share it with the class. Students must use the following programming constructs in their code. ● Variables ● Flow chart ● Control Structures ● Functions ● Object Oriented Design
Unit 7 Pathway Standard(s)	D2.0 Demonstrate an understanding of game and simulation analysis, design, standard documentation, and development tools. D3.0 Create a working game or simulation individually or as part of a team. D4.0 Identify, describe, and implement standard game/simulation strategy and rules of play.
Unit 7 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. D3.3 Using simple game development tools, create a game or simulation. D4.5 Create and design the game flow as it relates to the story and plot.
Unit 7 Anchor Standard(s)	5.0 Problem Solving and Critical Thinking 11.0 Demonstration and Application
Unit 7 Anchor – Performance Indicators	5.5 Use a logical and structured approach to isolate and identify the source of problems and to resolve problems. 5.8 Create and use algorithms and solve problems.

	11.1 Utilize work-based/workplace learning experiences to demonstrate and expand upon knowledge and skills gained during classroom instruction and laboratory practices specific to the Information and Communication Technologies sector program of study.				
Unit 7 Curricular Resources					
Unit 7 Total Hours	45	**Classroom**	15	**CC/CVE**	0

College and Career Transition Plan (CCTP) Unit

Unit 8 Title	RCOE College and Career Transition Plan (CCTP)
Unit 8 Engaging Title	"Guardians of the Digital Realm: Embarking on a Cybersecurity Odyssey"
Unit 8- Essential Question	Where will my decisions lead me in life?
Unit 8- 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 that 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 8- 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 deductions on a paycheck, researching loan options based on creditworthiness, creating a budget, and planning for retirement.
Unit 8- 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 8- Pathway – Performance Indicator(s)	D1.7 Identify the core tasks and challenges that face a game or simulation design team.
Unit 8 Anchor Standard(s)	3.0 Career Planning and Management
Unit 8 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 8 Curricular Resources	*The Job Hunting Handbook* (Dalstrom)				
Unit 8 Total Hours	15	**Classroom**	15	**CC/CVE**	0

Course Assessments

1st Semester Common Assessment	
Narrative	**Build your Personal Computer (PC)** This is a two-part assessment that involves a PC build and a Virtual Machine. Students will form into a team of three. **Part I: Personal Computer Build** Students will create a PC build document that includes: ● Three different PCs ● Hardware Components ○ Product Name ○ Company Name ○ Brand ○ Model ○ Description ○ Price ○ Reference (3 Vendors *Unless the distribution company is the only retail store.) **Part II: Virtual Machine and Operating System Installation and Configuration** Students will Install and configure Windows 10 on the system via hypervisor management with the following criteria: ● Type 2 Hypervisor ● Microsoft Windows 10 ● Hypervisor configuration ● Format and format disk ● OS Configuration ● OS is up-to-date ● OS is security ● Access the Internet

Final Common Assessment	
Narrative	A comprehensive exam and a summative project will be required for the final assessment. **Project: Create a simple game** Students will select a game to design and develop from scratch. **Exam: Tech+ (FC0-U71)** The comprehensive exam will cover all of the technology fundamental topics covered in the course for the second semester. These questions align with preparation for the Tech+ (FC0-U71) certification exam: ● IT Concepts and Terminology ● Infrastructure ● Applications and Software ● Software Development Concepts ● Data and Database Fundamentals ● Security The summative project will require students to: TestOut B2: Prepare for CompTIA Tech+ FC0-U71 Certification Final Exam (End of Semester) B.3: Prepare for Tech Pro Certification Certification Exam (Optional: End of Semester)

Entered by:

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