Subject:	GPM
Course Number:	170
Descriptive Title:	Game Systems and Mechanics Design
Division:	Library and Learning Resources
Department:	Games and Playable Media
Course Disciplines:	Games and Playable Media
Catalog Description:	This course focuses on building a solid understanding of play mechanics: the formal elements of play, the dramatic elements that make a game meaningful to its players, and the system dynamics that shape the overall experience. Lectures will use historical and current games and genres to illustrate key concepts. Topics include strategy and tactics, resource management, emergent complexity, puzzles and puzzle integration, interconnected systems, and game balance. Students will also learn the process of systems design through prototyping and playtesting based on established practices and industry trends.
Prerequisite:	GPM 110
Co-requisite:	
Recommended Preparation:	GPM 150 or DART 150
Enrollment Limitation:	
Hours Lecture (per week):	2
Hours Laboratory (per week):	3
Outside Study Hours:	4
Total Course Hours:	90
Course Units:	3
Grading Method:	Letter Grade and Pass/No Pass
Credit Status:	Credit, degree applicable
Transfer CSU:	Yes
Effective Date:	Fall 2026
Transfer UC:	Yes
Effective Date:	pending Fall 2026
General Education ECC:	
Term:	
Other:	
CSU GE:	
Term:	
Other:	
IGETC:	

Term:	
Other:	
CalGETC:	
Term:	
Other:	
Student Learning Outcomes:	Upon completion of this course, the student will be able to: 1. identify the formal, dramatic, and dynamic aspects of games and analyze how these elements work together to create meaningful play. 2. create playable game prototypes in a game editor that demonstrate mastery over genre and mechanics. 3. develop project plans and design documents that effectively communicate original implementations of game mechanics and systems.
Course Objectives:	1. Utilize rules and features to develop systems that align with player experience goals. 2. Design and evaluate mechanics within a game in order to create a well-balanced play experience. 3. Use rapid development processes to create analog and digital prototypes in order to test game mechanics and systems outside of the production environment. 4. Evaluate game engines in relation to desired mechanics and assets. 5. Analyze, classify, and break down the components of a game engine. 6. Identify factors that contribute to project size and develop strategies to manage a game's scope with a limited development schedule.
Major Topics:	**Lecture** I. **Game Vocabulary** A. Formal & dramatic elements of games B. Mechanics C. System dynamics D. Core loop E. Player experience goals F. Game state G. Scope II. **Categories of mechanics** A. Space B. Time C. Objects D. Actions E. Rules F. Skill G. Chance III. **Applications** A. Puzzle design B. Mechanics through genres III. **Game feel** A. Flow B. Metrics

	C. Input mechanisms D. Responsiveness E. Polish F. Immersion IV. **Design process** A. Ideation B. Prototyping C. Playtesting & iterative design D. Functionality E. Completeness F. Balance G. Accessibility V. **Design communication** A. Visualization B. Diagrams & drawings C. Spreadsheets D. Design documentation E. Design macros **Lab Topics** I. **Iterative design process** A. Rapid prototyping B. Physical prototyping C. Playtesting D. Critique & feedback II. **Working with game engines** A. Game objects B. Player metrics C. Balancing systems within existing projects
Total Lecture Hours:	36
Total Laboratory Hours:	54
Total Hours:	90
A.1. Primary Methods of Evaluation (Part 1 - CCN courses only):	
Primary Method of Evaluation:	3) Skills demonstration
Typical Assignment Using Primary Method of Evaluation:	In this major course project you will work in teams to design and develop a digital game prototype that delivers a play experience where multiple game mechanics are balanced to engage players in a system that includes meaningful play loops and offers the potential for extension into deeper or more extensive play experiences that merit the development of a complete game. Your team's project should be a single player game unless you have received instructor approval to develop a multiplayer experience. Such permission will only be granted when the instructor believes that the game concept is constrainted enough and team's skills are sufficient to reach project completion by the due date. The prototype should not be part of an existing project. We will use the standard cycle of pitching projects to form teams.In addition to a functioning prototype, teams will be

	responsible for submitting game documentation commensurate with methods covered in this course and each team member will submit an individual development log.
Critical Thinking Assignment 1:	For this assignment you are going to either submit a short paper or record a short video in which you will describe first the player experience and then the system design of a commercially released puzzle game. You should describe the player experience in narrative terms, but you should provide your explanation of system design using industry standard game development terminology. After describing the experience and the design, offer a short reflection on how the design of the game supports the played experience such that the game's puzzles offer compelling challenges to the player.
Critical Thinking Assignment 2:	In this class session you will work in small groups to evaluate hypothetical game projects. Each group will be given a very short description of the game they are to evaluate. You will then work collaboratively to develop a list of the types of game assets that might be needed to deliver a fully playable experience, as well as the type of game engine and essential engine features that would be required for design, development, and delivery of the game.
Other Evaluation Methods:	Journal kept throughout course
If Other:	
Instructional Methods:	Group Activities, Lab, Lecture
If other:	
Work Outside of Class:	Journal (done on a continuing basis throughout the semester), Problem solving activity, Required reading, Skill practice, Written work (such as essay/composition/report/analysis/research)
If Other:	
Up-To-Date Representative Texts:	Game Design Workshop: A Playcentric Approach to Creating Innovative Games, Tracy Fullerton, A K Peters/CRC Press © 2018; (discipline standard) Schell, Jesse. The Art of Game Design: A Book of Lenses. CRC Press, 2020.
Alternative Texts:	Swink, Steve. Game Feel: A Game Designer's Guide to Virtual Sensation. Morgan Kaufmann Publishers, 2009. (discipline standard)
Required Supplementary Readings:	
Other Required Materials:	
Requisite	Prerequisite
Category	sequential
Requisite course:	GPM 110
Requisite and Matching skill(s): Bold the requisite skill. List the corresponding course objective under each skill(s).	**Fundamental game design knowledge** GPM 110 - Design game prototypes using industry practices and language. GPM 110 - Compare and contrast different elements of game design and the affordances and constraints they offer for creating play experiences.
Requisite Skill:	
Requisite Skill and Matching skill(s): Bold	

the requisite skill(s). if applicable	
Requisite course:	GPM 150 or DART 150
Requisite and Matching skill(s): Bold the requisite skill. List the corresponding course objective under each skill(s).	**Demonstrate basic famliiarity with an industry standard game engine** GPM 150 - Create and modify scripts within an existing game project. DART 150 - Plan and execute a working and playable game prototype from original assets in a contemporary game engine.
Requisite Skill:	
Requisite Skill and Matching skill(s): Bold the requisite skill. List the corresponding course objective under each skill(s). if applicable	
Enrollment Limitations and Category:	
Enrollment Limitations Impact:	
Course Created by:	Arnold Martin
Date:	03/17/2025
Original Board Approval Date:	06/26/2025
Effective Term:	FA 2026