CIT - 217 - Game Development Fundamentals

2025-2026 Course Proposal Form

Course Information

Please select which best fits this course proposal:*
- [x] Course New/Reactivation Proposal
- [ ] Course Revision Proposal
- [ ] Course Retirement Proposal
- [ ] Course Outcomes Revision Proposal

Department* Computer Information Technology

IF proposing a new course type or prefix, please select "NEW Course Type or NEW Prefix" from the dropdown and input the requested data in the new text field that follows.

Course Type:* Computer Information Technology

NEW Course Type: N/A

NEW Prefix: N/A

Prefix:* CIT

Course Number:* 217

Course Title:* Game Development Fundamentals

Credit(s):* 3

Course Description:* This course builds on the skills from multiple earlier classes, including Object Oriented Programming, Data Structures and Collaborative Software Development, to develop fundamental skills with game development. The course will cover sprites and animation, collision detection and resolution, drawing maps, state machines, basic AI and the use of game development frameworks and engines.

Lecture Hours:* 3

Laboratory Hours:* 0

Clinical Hours:* 0

Internship Hours:* 0

Prerequisite(s): N/A

Corequisite(s): N/A

Pre / Corequisite(s): N/A

Required Materials* Check the College Bookstore for Required Materials.

Course Learning Outcomes:*

1. Build simple games with game development frameworks and engines
2. Display graphics, moving objects, animations and display maps with scrolling
3. Implement collision detection, resolution and game logic
4. Implement input and event handling, and response to timers
5. Develop computer controlled entities with basic AI
6. Debug, test and package

Student Learning Outcomes:*

1. Distinguish between game development libraries, frameworks and engines

2. List example libraries, frameworks and engines, including their development and deployment platforms

3. Compare and contrast video games with animated film

4. Define frame rate (CLO 4)

5. Describe a basic game loop (CLO 4)

6. Describe an event queue (CLO 4)

7. Write code that displays a sprite

8. Write code that processes a spritesheet

9. Write code that handles user input from the keyboard and gamepad (CLO 4)

10. Write code that moves and animates a sprite (CLO 4)

11. Draw a tilemap using a map editing tool

12. Write code that renders a tiled map (CLO 4)

13. List and describe different camera and scrolling techniques

14. Implement a camera and scrolling on a map

15. Use a content or map editor to add game objects to maps

16. Describe different types of collisions (CLO 4)

17. Write code that performs collision detection and resolution (CLO 4)

18. Process map-based events and triggers

19. Describe a Finite State Machine (CLO 4)

20. Describe the purpose of a State Stack (CLO 4)

21. Build multiple game modes, including menus, title screens and pause screens, using a State Stack

22. Write a basic decision tree for computer-controlled entities (CLO 4)

23. Move computer-controlled entities with various movement patterns

24. Control a game entity with a Finite State Machine

25. Write code that plays audio in response to events (CLO 4)

26. Write code that plays background music (CLO 4)

27. Describe why object-oriented programming is prominent in game development (CLO 4)

General Education Outcomes:

Please select up to 2 from the list of the general education outcomes taught in this course.

Select up to 2 of the following:*

- [x] Communicate effectively in oral and written formats
- [x] Employ or utilize information access and literacy skills
- [x] Demonstrate problem-solving and critical thinking skills
- [x] Employ mathematical and science literacy skills
- [x] Acquire a cultural, artistic and global perspective
- [x] Demonstrate professional and human relations skills

Types of Formative Assessment:

Please select at least 3 formative assessment tools that are most appropriate to the course description and outcomes, regardless of modality. Formative assessment tools are learning activities or assessments that monitor and provide ongoing feedback on student learning. Formative assessments allow students to identify their strengths and weaknesses and for instructors to address student questions and misunderstandings

Select at least 3 of the following:*

- [x] Practice Quizzes
- [ ] Paper Drafts
- [x] Class Discussions/Q&A
- [ ] Low-stakes Group Work
- [x] Homework Assignment
- [ ] Surveys/Polls
- [ ] Laboratory/Instrument Practice
- [ ] Written Reflections
- [x] Self-appraisal using study guides, quiz software, interactive textbook
- [ ] Other

Types of Summative Assessment:

Please select at least 2 summative assessment tools that are most appropriate to the course description and outcomes, regardless of modality. Summative assessment tools are learning activities or assessments that evaluate student learning at the end of an instructional period, like a module, unit, or course. Summative assessments are formally graded and allow instructors to determine whether and to what extent students have met the course learning outcomes.

Select at least 2 of the following:*

- [x] Instructor-Created Exams/High-Stakes Quizzes
- [ ] Standardized Tests
- [ ] Laboratory Reports
- [ ] Final Projects
- [x] Final Essays/Research Papers
- [ ] Final Presentations
- [ ] Final Reports
- [ ] Internships/ Clinical Site Evaluations
- [ ] Other

Minimum Acceptable Standards*

For quizzes, homework, and assessment activities listed, the instructor's analysis of satisfactory demonstration of knowledge will be used; on summative methods such as exams, papers, or projects, achieving a letter grade of "C", or 70% or above will demonstrate satisfactory understanding and basic mastery of outcomes.

Please answer the following questions related to your curriculum proposal:

Why are you recommending these changes? (courses outdated, recommendation of advisory committee, results of assessment activities and data, better attainment of program/course outcomes)

Justification:*

· Requested by CIT Advisory Committee

· This will replace outdated courses and offer students with current software's and hands on exercises preparing them for the workforce.

· Game development and AI are the current trending concepts that our Software Engineering students can benift from.

· Betterment of program by being able to use the current technologies and trends.

Last Semester Needed: N/A

Impact Report Statement

List all program(s) or course(s) affected by these changes. If no program(s) or course(s) are affected, please state "NA" below. Run an Impact Report by clicking in the top left corner and answer below according to the results.

Impact Report: N/A

What impact will these changes have on other courses or programs? (List impacted programs and comments or input you have gathered from other faculty, program directors, or Division Chairs)

Other Courses or Programs: This will be only offered to Software Engineering students.

What impact will these changes have on institutional resources? (Budget, faculty, equipment, labs, instructional design, etc.) Have you already discussed this impact with appropriate personnel (financial aid, administration, division chair, other faculty)?

Institutional Resources: This will be an OER course with an option for the student to buy certification exam voucher.

What impact will these changes have on current students? How will you ensure that current students are not penalized by these changes?

Current Students:	Waivers can be done on a case by case basis.

What impact will these changes have on transferability, national/regional association standards, etc.?

Transferability, National / Regional Association Standards, Etc.:	N/A

What impact will these changes have on the institution's mission and student's achievement of general education outcomes/requirements?

Mission; General Education Outcomes / Requirements:	N/A

Administrative Use Only

Please do <u>not</u> alter the information within this section.

Course OID:	
Information or Voting Item:	☐ Information Item (If the proposal does not impact other courses, select this option) ☐ Voting Item
Implementation Semester and Year*	Fall 2025