CS 4173: Video Game Development

Required Course: Elective  
Course Number: CS 4173  
Course Name: Video Game Development  
Credit Hours: 3  
Lecture Hours: 3  
Lab Hours: 0  
Instructors: Dr. Blayne E. Mayfield  
            Dr. Douglas Heisterkamp

Book Title(s): Unity in Action: Multiplatform game development in C# with Unity 5  
Book Author(s): Joseph Hocking  
Book Year(s): 2018

Course Description: Theory and pragmatics of game design including game mechanics, storytelling, and types of game play. The relationship between human/computer interaction and the user experience. A survey of game genres. An overview of the video game industry from a design perspective.

Course Prerequisites: CS 2133 (Computer Science II), CS 2433 (C/C++ Programming), and MATH 2144 (Calculus I).

Course Goals: By the end of the course, students should have learned the following:

- Sources of current and upcoming news and trends related to video game development and evaluating your own design and development practices in terms of what you discover there.
- The use of the Unity IDE (Interactive Development Environment) to develop, test, and debug both 2D and 3D video games.
- The use of related software tools, such as those for developing art and audio assets.
- The syntax and semantics of the C# programming language, as it is used in Unity 3D.
- Several fundamental Android APIs necessary to develop apps.

Student Outcomes:

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<tr>
<th>Student Outcome</th>
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<tr>
<td>1</td>
<td>• Learn the computer graphics, audio and AI concepts in video game development.</td>
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<td>2</td>
<td>• Students will be able to use Unity IDE to develop video games.</td>
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<td>3</td>
<td>• Students will be able to learn to work as a team.</td>
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<td>5</td>
<td>• Working as part of a multi-campus team to develop video games effectively and efficiently.</td>
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**Course Topics:**
- History of video games.
- A survey of various game platforms.
- Computer graphics, audio tools and techniques.
- Artificial intelligence for game development.
- Game engines.
- Game development tools and techniques.
- An overview of the video industry from a development perspective.