Course Outline

COURSE: DM 160 DIVISION: 50 ALSO LISTED AS: CSIS 160

TERM EFFECTIVE: Fall 2016 CURRICULUM APPROVAL DATE: 02/22/2016

SHORT TITLE: GAME DESIGN

LONG TITLE: Game Design

<table>
<thead>
<tr>
<th>Units</th>
<th>Number of Weeks</th>
<th>Type</th>
<th>Contact Hours/Week</th>
<th>Total Contact Hours</th>
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<td>3</td>
<td>18</td>
<td>Lecture: 3</td>
<td>54</td>
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<td></td>
<td></td>
<td>Lab: 0</td>
<td>0</td>
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<td>Other: 0</td>
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<td></td>
<td>Total: 3</td>
<td>54</td>
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COURSE DESCRIPTION:

Intended for students who want to explore game design and computational media. Compelling successful games are created by developers who have absorbed the fundamental principles of good game design. Students will analyze existing games for their educational and entertainment value, and create their own games using freely available software and game development environments. Key concepts such as game math, textures and materials, geometry and topology, lighting, sound and special effects will be explored. No previous programming experience is necessary. This course has the option of a letter grade or pass/no pass. This course is also listed as CSIS 160.

PREREQUISITES:

COREQUISITES:

CREDIT STATUS: D - Credit - Degree Applicable

GRADING MODES

L - Standard Letter Grade
P - Pass/No Pass

REPEATABILITY: N - Course may not be repeated

SCHEDULE TYPES:

02 - Lecture and/or discussion
05 - Hybrid
72 - Dist. Ed Internet Delayed
STUDENT LEARNING OUTCOMES:

1. Students will discuss the fundamentals of good game design and explain what elements or features contribute to making a game compelling and popular.
   Measure: quiz, homework, exam
   PLO:
   ILO: 7,1,2, 3, 4, 5
   GE-LO: C1, C5
   Anticipated Year of Assessment: 2017

2. Students will identify sprites, objects and components needed to implement a given game concept.
   Measure: homework, project, exam
   PLO:
   ILO: 7,1,2
   GE-LO: B8
   Anticipated Year of Assessment: 2017

3. Students will design and implement at least two additional game levels that extend the concepts presented in class.
   Measure: project
   PLO: 7, 2
   ILO:
   GE-LO:
   Anticipated Year of Assessment: 2017

4. Students will identify the logic errors in the coding of games and make appropriate corrections to make the games function as specified.
   Measure: project, homework, exam
   PLO:
   ILO: 7, 1, 2, 3
   GE-LO: B8
   Anticipated Year of Assessment: 2017

CONTENT, STUDENT PERFORMANCE OBJECTIVES, OUT-OF-CLASS ASSIGNMENTS

Curriculum Approval Date: 02/22/2016

3 Hours
Content: GETTING STARTED
Installing the Software
   The Global User Interface
   Running a Game
   How to Get More Information

Student Performance Objectives (SPO): Students can use the software interface and the help features

Out-of-Class Assignments: Read chapter in text. Download and install software.

3 Hours
Content: Your First Game
   Sprites
   Objects
   The Boss Object
   Events and Actions
   Rooms
   Save and Run
   Instances and Objects
Backgrounds and Sounds
A Background Image
Background Music
Sound Effects

Student Performance Objectives (SPO): Students can use the basic features of the software.
Out-of-Class Assignments: Read chapter in text. Start creating a simple game.
3 Hours

Content: Part 2 ACTION GAMES
More Actions
Sprites and Sounds
Winning and Losing
Scores
Levels
A Title Screen
Winning the Game
Adding Some Visual Variety
Help Information

Student Performance Objectives (SPO): Students can use more features of the software.
Out-of-Class Assignments: Read chapter in text. Add simple visual enhancements to game.
3 Hours

Content: Target the Player
Designing the Game
An Animated Character
A Test Environment
Falling Boxes
Adding a Goal
Starting a Level
Sounds, Backgrounds and Help Levels

Student Performance Objectives (SPO): 
Out-of-Class Assignments: 
3 Hours

Content: Game Design: Interactive Challenges
What Makes a Good Game?
Game Design
Graphics, Pixels, and Color
Game Mechanics
Interactive Challenges
Game Genres
Challenges
Difficulty
Goals
Rewards
Sub-goals
Interactivity
Choices and Control
Audio Feedback

Student Performance Objectives (SPO): Students can describe three features of a good game.
Out-of-Class Assignments: Read chapters in the text.
3 Hours
Content: LEVEL DESIGN
Inheriting Events
  Designing the Game: Game Software Development
  A Game Framework
  The Front-End
  The Completion Screen
  Lives
  Blocks
  Polishing the Game
  Sound Effects
  Sound and Music
  Saving Games and Quitting
  Creating the Levels

Student Performance Objectives (SPO): Students create an plan for a more detailed game.
Out-of-Class Assignments: Read chapters in text. Create a written plan for a game with levels.

3 Hours
Content: Maze Games
  Designing the Game
  The Basic Maze
  The Game Framework
  A Moving Character
  Creating Hazards
  Tiles
  Locks and Switches
  Finishing the Game

Student Performance Objectives (SPO): Students can describe how a maze is designed
Out-of-Class Assignments: Read chapter in text. Design a simple maze.

3 Hours
Content: Game Design: Levels and Features
  Selecting Features
  Designing Levels
  Learning Curves
  Difficulty Curves
  Applying it All
  Features
  Summary

Student Performance Objectives (SPO): Students can describe the concept of levels in a game.
Out-of-Class Assignments: Read the text. Continue to refine the plan for a game with several levels.

3 Hours
Content: MULTIPLAYER GAMES
Cooperative Games
  Variables and Properties
  The Illusion of Motion
  Flying Planes
  Enemies and Weapons
  Dealing with Damage
  Time Lines
Finishing Touches

Student Performance Objectives (SPO): Students discuss the differences in designing single versus multiplayer games

Out-of-Class Assignments: Read the text. Continue to work on game projects.
3 Hours

Content: Competitive Games

Views

Student Performance Objectives (SPO): 

Out-of-Class Assignments:
6 Hours

Content: Game Design: Balance in Multiplayer Games

- Competition and Cooperation
- Independent Competition
- Dependent Competition
- Independent Cooperation
- Dependent Cooperation
- Mix and Match
- Balanced Beginnings
- Equivalent Characters
- Balancing Differences
- Balanced Choice
- Weighted Choice
- Cyclic Relationships
- Balanced Computer Opponents
- Artificial Stupidity

Summary

Student Performance Objectives (SPO): Students can describe three features of a good multiplayer game.

Out-of-Class Assignments: Read the text. Collaborate with classmates on multiplayer game project.
6 Hours

Content: ENEMIES AND INTELLIGENCE

Become a Programmer

- Variables
- Functions
- Conditional Statements
- Repeating Things
- Arrays
- Dealing with Other Instances
- Scripts as Functions
- Debugging Programs

Student Performance Objectives (SPO): Students can describe the relationship between various code statements and specific actions of characters in a game.

Out-of-Class Assignments: Read the text. Create and debug a new movement or action for a character in a game.
3 Hours

Content: Clever Computers

- Designing the Game
- The Playing Field
- Let the Computer Play
A Clever Computer Opponent
Adaptive Gameplay

Student Performance Objectives (SPO): Students can describe the programming concepts that allow the computer to play the role of the opponent in a game.

Out-of-Class Assignments: Read the text. Program the tic-tac-toe game with the computer as the opponent.
3 Hours

Content: Intelligent Behavior
- Designing the Game
- Lighting and Rendering
- The Basic Framework
- Creating the Maze and the Explorer
- Reactive Behavior
- Movable Blocks
- Rule-Base Behavior
- Walking Around
- Dealing with States
- Special Effects and Post-Processing

Student Performance Objectives (SPO): Students can create more advanced features in a game.

Out-of-Class Assignments: Read the text. Continue to collaborate on game projects.
3 Hours

Content: Final Words
- Creating Resources
- Artwork: the GIMP
- Music: Anvil Studio
- Sound Effects: Audacity
- The Game Maker Community

Student Performance Objectives (SPO): Students can describe some resources to continue to enhance their games.

Out-of-Class Assignments: Read the text. Download and install an open source game resource and demonstrate it to classmates.

METHODS OF INSTRUCTION:
Lecture, discussion, projects.

METHODS OF EVALUATION:

Category 1 - The types of writing assignments required:
Percent range of total grade: % to %
If this is a degree applicable course, but substantial writing assignments are NOT appropriate, indicate reason
Course primarily involves skill demonstration or problem solving

Category 2 - The problem-solving assignments required:
Percent range of total grade: 10 % to 80 %
Homework Problems
Lab Reports
Other: game building projects

Category 3 - The types of skill demonstrations required:
Percent range of total grade: 10 % to 30 %
Class Performance/s

Category 4 - The types of objective examinations used in the course:
Percent range of total grade: 10 % to 30 %
Multiple Choice
True/False
Matching Items
Completion
Other: short answer

REPRESENTATIVE TEXTBOOKS:
Required:
Alan Thorn.  Game Development Principles, Cengage Higher Ed, 2014. Or other appropriate college level text.
Reading level of text, Grade: 12+  Verified by: ev
Other textbooks or materials to be purchased by the student:
The Game Maker’s Apprentice: Game Development for Beginners
Jacob Habgood and Mark Overmars Copyright 2006 Publisher: Apress

ARTICULATION and CERTIFICATE INFORMATION
  Associate Degree:
  CSU GE:
  IGETC:
  CSU TRANSFER:
    Transferable CSU, effective 201670
  UC TRANSFER:
    Not Transferable

SUPPLEMENTAL DATA:
  Basic Skills: N
  Classification: Y
  Noncredit Category: Y
  Cooperative Education:
  Program Status: 1 Program Applicable
  Special Class Status: N
  CAN:
  CAN Sequence:
  CSU Crosswalk Course Department:
  CSU Crosswalk Course Number:
  Prior to College Level: Y
  Non Credit Enhanced Funding: N
  Funding Agency Code: Y
  In-Service: N
  Occupational Course: C
  Maximum Hours: 3
  Minimum Hours: 3
  Course Control Number: CCC000571982
  Sports/Physical Education Course: N
  Taxonomy of Program: 070710

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