COURSE OUTLINE

Course Number: GAM 140
Course Title: Game Design I
Credits: 3

Hours: 1 lecture/4 Lab
Pre-requisite: GAM120, DMA120, DMA135, COS101 or permission of instructor
Implementation: Fall 2010

Catalog description:

Students develop fundamental skills designing computer games. Topics include environments, interfaces, rules, dynamics, play mechanics, goals, conflicts and aesthetics. Students learn to use standard industry level-building software and digital sculpting tools. Emphasis is placed on conceptual design of game play, interface, and the processes of 2D and 3D content creation.

New Course:

This course is the second in a series of four courses to support the new Game Design program

Required texts/other materials: None

Revision date: January 29, 2013
Course coordinator: Instructor Ric Giantisco, X3458, giantisr@mccc.edu

Information resources:

- International Game Developers Association: http://www.igda.org/
- Introduction to Game Development, 2nd Edition, by Steve Rabin, Charles River Media
- The Art of Game Design: A Book of Lenses, by Jesse Schell
- GameDev.net
- Game Developer Magazine
- Gamasutra.com
- Other resources as indicated by the instructor

Other learning resources:

- Game Maker Pro
- Standard graphics software such as Adobe Creative Suite, and Autodesk products
- UnReal Developer's Kit
- Microsoft Office Suite
- Game Lab ES129/ ES130
Course Competencies/Goals:

The student will be able to:
1. Build prototypes to test game design concepts;
2. Design concepts for digital games;
3. Create sales pitches for digital games;
4. Design and develop appropriate 2D graphics for games;
5. Design and develop appropriate 3D graphics for games;
6. Critique Mechanics, Dynamics and Aesthetics of game design concepts and prototypes effectively;
7. Design and build a game level or MOD, applying sprites, objects, textures, lighting and simple physics;

Course-specific General Education Knowledge Goals and Core Skills.

General Education Knowledge Goals
Goal 1. Communication. Students will communicate effectively in both speech and writing.
Goal 4. Technology. Students will use computer systems or other appropriate forms of technology to achieve educational and personal goals.
Goal 6. Humanities. Students will analyze works in the fields of art, music, or theater; literature; philosophy and/or religious studies; and/or will gain competence in the use of a foreign language.

MCCC Core Skills
Goal A. Written and Oral Communication in English. Students will communicate effectively in speech and writing, and demonstrate proficiency in reading.
Goal B. Critical Thinking and Problem-solving. Students will use critical thinking and problem solving skills in analyzing information.
Goal D. Information Literacy. Students will recognize when information is needed and have the knowledge and skills to locate, evaluate, and effectively use information for college level work.
Goal E. Computer Literacy. Students will use computers to access, analyze or present information, solve problems, and communicate with others.
Goal F. Collaboration and Cooperation. Students will develop the interpersonal skills required for effective performance in group situations.

Units of study

Unit I 2D Game Art
This unit of study focuses on the design and development of 2D graphic elements for games. The focus will be on gaining experience working in standard graphic software programs using industry standard protocols for game graphic preparation. Students will continue to develop mastery of basic elements and principles of design as well as appropriate use of color palettes and systems, resolution, and digital formats.

Learning Objectives
The student will be able to...

<table>
<thead>
<tr>
<th>Unit Objective:</th>
<th>Course Competencies</th>
<th>Gen Ed</th>
<th>Core</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 2 3 4 5 6 7 1 4 6</td>
<td>A B D E F</td>
<td></td>
</tr>
<tr>
<td>i</td>
<td>x x</td>
<td>x</td>
<td>x x x</td>
</tr>
<tr>
<td>ii</td>
<td>x x</td>
<td>x x</td>
<td>x x x</td>
</tr>
<tr>
<td>iii</td>
<td>x x</td>
<td>x x</td>
<td>x x x</td>
</tr>
<tr>
<td>iv</td>
<td></td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>v</td>
<td>x x</td>
<td>x</td>
<td>x x x</td>
</tr>
</tbody>
</table>

i. Apply research to the development of visual concepts
ii. Produce concept sketches of 2D graphics to be used in games.
iii. Construct 2D graphic assets for use in games.
iv. Explain requirements for graphics in games.
v. Critique creative work from self and others meaningfully.

Unit 2
2D Game Design
This unit of study will target the design and development of a 2D computer game, from concept through a working prototype. Students will design the MDA for the game and develop graphics and scripting to support the creation of a digital prototype. Emphasis is on quality of graphics to support the game design concept and the "playability" of the game.

Learning Objectives
The student will be able to…

<table>
<thead>
<tr>
<th>Unit Objective</th>
<th>Course Competencies</th>
<th>Gen Ed</th>
<th>Core</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 2 3 4 5 6 7</td>
<td>1 4 6</td>
<td></td>
</tr>
<tr>
<td>i</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ii</td>
<td>x</td>
<td>x x</td>
<td></td>
</tr>
<tr>
<td>iii</td>
<td>x x</td>
<td>x</td>
<td>x x</td>
</tr>
<tr>
<td>iv</td>
<td>x</td>
<td>x x</td>
<td></td>
</tr>
<tr>
<td>v</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>vi</td>
<td>x</td>
<td>x x</td>
<td></td>
</tr>
</tbody>
</table>

i. Generate a professional pitch for a game idea.
ii. Produce a design document of a 2D game concept.
iii. Effectively use a paper prototype to test game design concepts.
iv. Test a game design concept to improve the working prototype.
v. Program the interface and interaction for the game concept.
vi. Critique creative work from self and others meaningfully.

Unit 3
3D Game Art
Students will design and develop 3D game models and animated sequences used in commercial game engines. Emphasis will be on learning digital sculpting and its relationship to low polygon models for preparation of normal maps. Students will develop skills in UV mapping and texturing specific for gaming.

Learning Objectives
The student will be able to…

<table>
<thead>
<tr>
<th>Unit Objective</th>
<th>Course Competencies</th>
<th>Gen Ed</th>
<th>Core</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 2 3 4 5 6 7</td>
<td>1 4 6</td>
<td></td>
</tr>
<tr>
<td>i</td>
<td>x</td>
<td>x x</td>
<td></td>
</tr>
<tr>
<td>ii</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>iii</td>
<td>x x</td>
<td>x x</td>
<td></td>
</tr>
<tr>
<td>iv</td>
<td>x</td>
<td>x x</td>
<td></td>
</tr>
<tr>
<td>v</td>
<td>x</td>
<td>x x</td>
<td></td>
</tr>
<tr>
<td>vi</td>
<td>x</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

i. Model low poly and sculpted 3D models for games.
ii. Create simple 3D animation sequences for games.
iii. Import graphic assets into a commercial game engine.
iv. Create texture and normal maps for models in a commercial game engine.
v. Script simple environment settings in a commercial game engine.
vi. Critique creative work from self and others meaningfully.

Unit 4 3D Level Design
Students will be introduced to a commercial game engine environment such as UnReal. In this unit students will design and develop a game level from an existing game concept. Emphasis will be placed on transferring graphics into the build with appropriate scale and mappings. Also, students will apply basic scripting to define environment behavior. Students will script examples of game play to demonstrate the playability of the level design.

**Learning Objectives**
The student will be able to…

<table>
<thead>
<tr>
<th>Unit Objective:</th>
<th>Course Competencies</th>
<th>Gen Ed</th>
<th>Core</th>
</tr>
</thead>
<tbody>
<tr>
<td>i.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ii.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>iii.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>iv.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>v.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>vi.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>vii.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

i. Generate a professional pitch for a game level idea.
ii. Produce a design document of a 3D game level.
iii. Effectively use a paper prototype to test game level design concepts.
iv. Import models and animate sequences in a professional game engine.
v. Configure a level’s texturing, lighting and basic physics.
vi. Script game play to test sample components of the level design concept.
vii. Critique creative work from self and others meaningfully.

**Evaluation of Learning**

20% Attendance and participation in discussion, lab activities and critiques. Students will be assessed based on their level of active involvement in tasks, verbal and written articulation of ideas, and cooperation during team activities. More than 5 days absent will result in no credit for attendance and participation unless special arrangements for makeup work have been established with the instructor.

60% Projects: Each unit has an associated project and supporting assignments that incorporate all the learning objectives for that unit. Each project generates both paper-based and digital artifact(s) that are evaluated in formal critiques during class and by the professor. The projects are averaged together for a total project grade.

20% Tutorials: Students will be required to study software tutorials for the programs used in the course. To measure student learning for this portion of the course, students will be given practical exams testing specific software skills they must perform correctly.

**Academic Integrity Statement:**

Students are expected to comply with the college-wide requirements for academic integrity. Mercer County Community College is committed to Academic Integrity—the honest, fair, and continuing pursuit of knowledge, free from fraud or deception. This implies that students are expected to be responsible for their own work. Presenting another individual’s work as one’s own and receiving excessive help from another individual will qualify as a violation of Academic Integrity. The entire policy on Academic Integrity is located in the Student handbook and is found on the college website: [www.mccc.edu/admissions_policies_integrity.shtml](http://www.mccc.edu/admissions_policies_integrity.shtml)
**Students with Disabilities:**

Any student in this class who has special needs because of a disability is entitled to receive accommodations. Eligible students at Mercer County Community College are assured services under the Americans with Disabilities Act and Section 504 of the Rehabilitation Act of 1973. If you believe you are eligible for services, please contact Arlene Stinson, the Director of Academic Support Services: (609) 570-3525 / stinsona@mccc.edu.

**Equal Opportunity Policy:**

Mercer County Community College is committed to a policy of equal treatment and opportunity in every respect of its relations with current and prospective faculty and staff members, without regard to race, color, religion, affectional or sexual orientation, gender and/or gender identity or expression, marital or parental status, ethnicity, nationality, veteran or military status, age, disability and any other legally protected basis. This includes, but is not limited to, recruitment, hiring or appointment, selection for training, transfer, layoff, promotion, compensation, and granting of tenure.

Questions regarding the equal opportunity policy and compliance statement may be directed to the Affirmative Action Officer, West Windsor Campus, (609) 570-3270.