

PELLISSIPPI STATE COMMUNITY COLLEGE  
MASTER SYLLABUS

**GAME & SIMULATION DESIGN IN 3D  
MDT 2670**

**Class Hours: 3.0**

**Credit Hours: 3.0**

**Laboratory Hours: 0.0**

**Revised: Fall 2010**

**Catalog Course Description:**

The primary emphasis of the course will be to further develop the simulation or game project completed at a "single level" in CGT 2160 class. The course will expand the project to include possible multiple levels, AI (artificial intelligence), advanced textures, enhanced interactivity, graduated injury recovery, incidental damage, improved character animation, etc. The overall intent will be to add more entertainment value and/or more realism and work with contemporary design challenges. The course will engage online volunteer testers to glean feedback for possible product modification. 3D character animation will be developed.

**Entry Level Standards:**

College level reading and writing, plus adequate planning and logic skills are expected. Students will be expected to understand and employ the overall workflow necessary for developing a game or simulation product. Candidates should already be familiar with related tools like Adobe Photoshop, Avid or Final Cut video editing, 2D and 3D modeling and animation, surfacing, textures, lighting, game engines like Unity and sound production techniques and software.

**Prerequisites:**

CGT 2160

**Textbook(s) and Other Course Materials:**

TBD

Web site material will be used to supplement this course.

**I. Week/Unit/Topic Basis:**

<b>Week</b>	<b>Topic</b>
1	Review previous project and analyze for possible enhancement. Consider feedback from online testers. What possible avenues exist for enhancement of existing product?
2	Is realism the Holy Grail? What challenges lie ahead for designers and developers? Where is the industry likely to head?
3	Beef up online testing and identify desirable changes, expansion, modifications, etc. Weigh resources and objectives. Begin game or simulation mods preproduction. Assign teams for various aspects of the production.
4-10	Full production phase for individual teams.

- 11-13 Combine all elements of project in completion phase. Upgrade the users' menus and control panels. Polish GUI.
- 14 Final element polishing and debugging and testing. Final comprehensive test /project /product Completion. Final product should reflect near commercial production values.
- 15 Final review of project. Invite outside users to test and try outcome for class.

## II. Course Objectives\*:

- A. Identify and discuss future market trends for game and simulation products. IV
- B. Analyze online and offline tester responses and use them to help determine design expansion. I, IV
- C. Identify and prioritize possible game enhancements, evaluate resources and determine production schedule. I, II,
- D. Demonstrate working knowledge of more advanced techniques in texturing, animation, lighting, interactivity, multiple level play, etc. and build some (or all) into the enhanced product. II, III, IV, VI
- E. Identify contemporary challenges in game and simulation design. IV, VI,
- F. Expand existing work so that it embodies more character and environmental realism. II, III, IV, VI
- G. Employ resources and skills necessary to communicate problems to programmers which require programming assistance beyond the scope of the designers. I
- H. Simplify and enhance user interface to increase "fun factor" and player/user engagement. I, II, III

\*Roman numerals after course objectives reference goals of the Media Technologies program.

## III. Instructional Processes\*:

Students will:

1. Work with other design students, CSIT programming students and online volunteer testers to create, program and test assets for game and simulation products. (*Active learning Strategies, Communications Outcome*)
2. Devise product expansion plan (including testing and debugging) based on tester input, schedule and meet milestones and deadlines to execute goals. (*Active Learning Strategies, Technological Literacy Outcome*)
3. Apply game and simulation design techniques to enhance and expand user experience by identifying and employing changes which will meet new objectives. (*Active Learning Strategies, Social/Behavioral Sciences Outcome*)
4. Challenge current level of skill and knowledge of 2D and 3D character modelers, animation tools, surfacing, texturing, and lighting tools to enhance realism of the existing game or simulation. (*Active Learning Strategies, Technological Literacy Outcome*)
5. Utilize the resources provided and other sources found through research to create more complex elements and /or game play/interactivity and a working finished multiple level

product of near commercial quality.

*(Active Learning Strategies, Technological Literacy Outcome, Social/Behavioral Sciences Outcome)*

6. Further employ online testing to continue to gauge general interest in product and to substantiate debugging procedures. *(Active Learning Strategies, Technological Literacy Outcome, Social/Behavioral Sciences Outcome )*

\*Strategies and outcomes listed after instructional processes reference TBR's goals for strengthening general education knowledge and skills, connecting course work to experiences beyond the classroom, and encouraging students to take active and responsible roles in the educational process.

#### **IV. Expectations for Student Performance\*:**

Upon successful completion of this course, the student should be able to:

1. Demonstrate knowledge of preproduction, production and postproduction approach to creating a game or simulation ( C)
2. By implementation, demonstrate working knowledge of a game engine, character modeling tool, 2D and 3D animation tools, texturing and surfacing tools and sound design tools to enhance user involvement. ( D, E, F)
3. Specify by design and intent, nature of final product, including intended market audience. (A, E, F)
4. Design comprehensive and functional user interface that is harmonious with the overall motif of the game or simulation. ( E, H)
5. Use software and online tutorial resources. ( A, B, C, D)
6. Refine game or simulation events to further improve and enhance player/user experience. (B, C, D, H)
7. Modify and refine product by employing a logical debugging process and online testing and evaluation. ( A, B, H)
8. Modify, expand, enhance and demonstrate an existing product. (A, B, C, D, E, F, H)
9. Design into product more complex levels of play, more realism in textures, lighting and camera usage, more player/user challenges or levels and employ physics engines, telemetry data and AI (artificial intelligence) where practical. (G)

\*Letters after performance expectations reference the course objectives listed above.

#### **V. Evaluation:**

##### **A. Testing Procedures:**

Students are evaluated primarily on the basis of attendance, assignments, homework and projects. Each instructor must provide full details the first week of class via a syllabus supplement.

##### How grades will be determined:

Assignments (as specified by instructor) will constitute 35% of final grade, online and homework expectations, 15% of final grade and projects, 50% of final grade. Quizzes and

Tests will not be given as a part of this class, but students may be required to complete tutorials in order to employ various software tools. These will be considered assignments and successful completion will be necessary to earn this portion of the final grade.

**B. Laboratory Expectations:**

Lab is a major part of this course and attendance is required. It is assumed that considerable lab work and tutorials will have to be completed outside of the regularly scheduled lecture time. Assignments and projects must be completed by the designated date. Failure to meet deadlines will result in reduction of final grade.

**C. Field Work:**

Some photography, videography and sound recording may be required.

**D. Other Evaluation Methods:**

Class participation and online activities/homework will also be weighed in the evaluation of the final grade for the course.

**E. Grading Scale:**

90 – 100	A
85 – 89	B+
80 – 84	B
76 – 79	C+
70 – 75	C
65 – 69	D
Below 65	F

**VI. Policies:**

**A. Attendance Policy:**

Pellissippi State expects students to attend all scheduled instructional activities. As a minimum, students in all courses (excluding distance learning courses) must be present for at least 75 percent of their scheduled class and laboratory meetings in order to receive credit for the course. Individual departments/programs/disciplines, with the approval of the vice president of Learning, may have requirements that are more stringent. In very specific circumstances, an appeal of the policy may be addressed to the head of the department in which the course was taken. If further action is warranted, the appeal may be addressed to the vice president of Learning.

**B. Academic Dishonesty:**

Plagiarism, cheating, and other forms of academic dishonesty are prohibited. Students guilty of academic misconduct, either directly or indirectly through participation or assistance, are immediately responsible to the instructor of the class. In addition to other possible disciplinary sanctions which may be imposed through the regular Pellissippi State procedures as a result of academic misconduct, the instructor has the authority to assign an F or a zero for the exercise or examination or to assign an F in the course. (*Pellissippi State Online Catalog*)

**C. Accommodations for disabilities:**

Students who need accommodations because of a disability, have emergency medical information to share, or need special arrangements in case the building must be evacuated

should inform the instructor immediately, privately after class or in her or his office. Students must present a current accommodation plan from a staff member in Services for Students with Disabilities (SSWD) in order to receive accommodations in this course. Services for Students with Disabilities may be contacted by going to Goins 127, 132, 134, 135, 131 or by phone: 539-7153 or TTY 694-6429. More information is available at [www.pstcc.edu/departments/swd/](http://www.pstcc.edu/departments/swd/).

D. Other Policies:

Use of Equipment:

Any act of misuse, vandalism, malicious or unwarranted damage or destruction, defacing, disfiguring, or unauthorized use of property/equipment belonging to Pellissippi State is subject to disciplinary sanction.