I. CATALOG INFORMATION

A. Discipline: GAME DESIGN

B. Subject Code and Number: GAME M105

C. Course Title: 3D for Game Design

D. Credit Course units:

Units: 3

Lecture Hours per week: 2

Lab Hours per week : 3

Variable Units : No

E. Student Learning Hours:

Lecture Hours:

Classroom hours: 35 - 35

Laboratory/Activity Hours:

Laboratory/Activity Hours 52.5 - 52.5

Total Combined Hours in a 17.5 week term: 87.5 - 87.5

F. Non-Credit Course hours per week _____

G. May be taken a total of: [X] 1 [ ] 2 [ ] 3 [ ] 4 time(s) for credit

H. Is the course co-designated (same as) another course: No [X] Yes [ ]
If YES, designate course Subject Code & Number: _____

I. Course Description:

Offers in-depth concepts for creating 3D assets for use in game engines and tools. Includes 3D modeling, UVW unwrapping, 2D and 3D texturing techniques, character and prop rigging, and animation. Covers 3D character modeling, texturing, and animation as well as building animated props and game environments for use in game engines. Emphasizes using industry standard software, techniques, and workflows.

J. Entrance Skills

*Prerequisite: No [X] Yes [ ] Course(s)

*Corequisite: No [X] Yes [ ] Course(s)

Limitation on Enrollment: No [X] Yes [ ]

Recommended Preparation: No [ ] Yes [X] Course(s)
MM M10

Other: No [X] Yes [ ]

K. Other Catalog Information:

II. COURSE OBJECTIVES

Upon successful completion of the course, a student will be able to:

		Methods of evaluation will be consistent with, but not limited by, the following types or examples.
1	model, texture and pose a prop and setup for portfolio display; sketch, model, texture, rig, and pose a character for portfolio display; design, model, texture, an environment, and import said environment into Game Engine for lighting, and portfolio presentation.	Quizzes Critique using project specific rubric
2	view and navigate 3D space, use view-handling commands and control object display.	Quizzes Critique using project specific rubric
3	create and transform geometric primitives, architectural objects, shapes, compound objects, dynamic objects, and systems.	Quizzes Critique using project specific rubric
4	create copies and arrays and use modifiers, surface modeling, precision and drawing aids as well as particle systems.	Quizzes Critique using project specific rubric
5	design, edit and apply materials, maps and shaders.	Quizzes Critique using project specific rubric
6	use key, fill, and backlighting to create depth in Game Engine; control various aspects of lighting, including intensity and falloff, position, color, visibility, and shadows.	Quizzes Critique using project specific rubric
7	choose the placement of the camera to determine the best appearance of your art for your portfolio.	Quizzes Critique using project specific rubric
8	use gestures and dynamic poses for your character to create the best position for your character.	Quizzes Critique using project specific rubric
9	create several flatbook portfolio pages from the three main	Quizzes Critique using project

	projects in class.	specific rubric

III. COURSE CONTENT

Estimated %	Topic	Learning Outcomes
Lecture (must total 100%)		
5.00%	Modifiers: - Transforms, Modifiers, and Object Data Flow - Using modifiers - World-Space modifiers - Object-Space modifiers	1, 3, 7
10.00%	Box Modeling: - Primitives Objects - Sub-Object Modes - Axis Tools - Arrange Objects - Mesh Commands - Create Tools - Transform Tools - Modeling and Generator Objects	1, 3, 4, 5
10.00%	Spline Modeling: - Spline Objects - Spline Tools - Spline Dynamics - Spline Generator Objects	1, 2, 3, 4
5.00%	Sculpting: - Sculpting Tools - Subdivision Tools - Stamps - Brushes Tools - Mask Tools	1, 3, 5, 7
10.00%	Unwrapping: - UVW Space - Texture Sizes - Layers - Projection Tools - Optimal Mapping	1, 5, 6
5.00%	Texture Creation: - Finding Reference - Painting Textures - Layer Styles - Blend Layers - Masks - Alpha Channels - Normal Maps - Reflection and Specular Maps - Shader Creation	1, 5
5.00%	Rigging: - Joints - Skin Tools - Painting Weight Tools - Point Weights - Mesh Flow	2, 3, 4, 8

5.00%	Posing and Animation: - Dynamic Poses - Camera Angles - Looping Animations - Showcasing Poses - 360 Camera Rotations	2, 3, 7, 8, 9
5.00%	Character Design: - Silhouette - Dynamic Characters - Background Characters - Anatomy - Props	1, 2, 3, 4, 5, 6, 7, 8, 9
5.00%	Environment Design: - Believable Environments - Clutter vs. Detail - Modular Design - Lighting and Cameras - Reference	1, 2, 3, 4, 5, 6, 7, 8, 9
5.00%	Engine: - Scene Setup - Importing Models, Textures, and Animation - Setting-Up Cameras - Lighting Scene	1, 2
2.00%	Introduction: - Project Work - Setting Up Your Scene - Modeling Objects - Using Materials - Placing Lights and Cameras - Animating Your Scene - Rendering Your Scene - The 3D Application User Interface: - Managing Files - Importing, Merging, Replacing, and XRefs - Using the Asset Browser - Startup Files and Layouts - The Initialization File - Backing Up and Archiving Scenes - Save Project With Assets	1, 2, 3, 4, 5, 6, 7, 8, 9
2.00%	Creating Copies and Arrays: - Overview of Copies, Instances, and References - Techniques for Cloning Objects - Arraying Objects - Mirroring Objects - Using the Spacing Tool	1, 3, 4, 7
2.00%	Character Animation: - Character Animation Toolkit (CAT) - Character Studio	1, 2, 3, 5, 7, 8
2.00%	Object Properties: - Object Properties Dialog Panels - Rename Object Tool - Custom Attributes - Parameter Collector - Expression Techniques	1, 2, 3

10.00%	Viewing and Navigating 3D Space: - General Viewport Concepts - Home Grid - Views Based on The World Coordinate Axis - Understanding Views - Setting Viewport Layout - Controlling Viewport Rendering - Controlling Display Performance - Using Standard View Navigation - Zooming, Panning, and Rotating Views	1, 2, 3
5.00%	Creating Geometry: - Basics of Creating and Modifying Objects - Geometric Primitives - Architectural Objects - Mental Ray Object - Shapes - Compound Objects - Dynamics Objects - Systems	1, 2, 3, 4, 5, 6, 7, 8, 9
2.00%	Selecting Objects: - Introducing Object Selection - Basics of Selecting Objects - Selecting by Region - Using Select by Name - Using Named Selection Sets - Using Selection Filters - Selecting with Track View - Selecting with Schematic View - Freezing and Unfreezing Objects - Hiding and Unhiding Objects by Selection - Hiding and Unhiding by Category - Isolate Selection - Introduction to Sub-Object Selection	1, 2, 7
2.00%	Moving, Rotating, and Scaling Objects: - Using Transforms - Transform Commands - Transform Coordinates and Coordinate Center - Transform Tools	1, 2, 3, 4, 7
3.00%	Rendering: - Render Setup Dialog - Rendered Frame Window - Render Output File Dialog - View Image File - Rendering Commands - Common Panel - Renderers - Rendering Elements Separately - Render to Texture - Rendering Previews and Grabbing Viewports - RAM Player - Panorama Exporter Utility - Network Rendering - Batch Rendering - Command-Line Rendering	1, 2, 3, 4, 5, 6, 7, 8, 9
Lab (must total 100%)		
30.00%	Application Exercises Related to Lecture Content	1, 2, 3, 4, 5, 6, 7, 8,

		9
30.00%	Hands-On Experience in Animation and Rendering	1, 2, 3, 4, 5, 6, 7, 8, 9
30.00%	Hands-On Experience in Producing Models, Mapping and Shading, Rigging and Lighting	1, 2, 3, 4, 5, 6, 7, 8, 9
10.00%	Critiques Related to Projects	1, 2, 3, 4, 5, 6, 7, 8, 9

IV. TYPICAL ASSIGNMENTS

A. Writing assignments

Writing assignments are required. Possible assignments may include, but are not limited to:	
1	write a proposal for the final project.
2	write brief descriptions of proposed game environments.
3	write backstories for the proposed character.

B. Appropriate outside assignments

Appropriate outside assignments are required. Possible assignments may include, but are not limited to:	
1	build a novel, memorable character.
2	develop and build an immersive environment.
3	research of subject matter for 3D characters and environments.

C. Critical thinking assignments

Critical thinking assignments are required. Possible assignments may include, but are not limited to:	
1	actively participate in the class critiques analyzing the creative work of peers.
2	compare and contrast students' work with the work of an experienced game artist.
3	analyze students' projects based on industry-standard products.

V. METHODS OF INSTRUCTION

Methods of instruction may include, but are not limited to:

[X] Distance Education – When any portion of class contact hours is replaced by distance education delivery mode (Complete DE Addendum, Section XV)

[X] Lecture/Discussion

[X] Laboratory/Activity

[X] Other (Specify)
Group work
One-on-one instruction
Handouts and written tutorials providing step-by-step project guidelines

[ ]

[X] Optional Field Trips

[ ] Required Field Trips

VI. METHODS OF EVALUATION

Methods of evaluation may include, but are not limited to:

[X] Essay Exam	[X] Classroom Discussion	[X] Skill Demonstration
[X] Problem Solving Exam	[X] Reports/Papers/ Journals	[X] Participation
[X] Objective Exams	[X] Projects	[X] Other (specify)

Detailed project guidelines and Game Design Program rubric.

VII. REPRESENTATIVE TEXTS AND OTHER COURSE MATERIALS

Vaughan, William C. The Pushing Points Topology Workbook: vol. 1. CreateSpace, 2018.

Legaspi, Chris. Anatomy for 3D Artists: The Essential Guide for CG Professionals. 3D Total Publishing, 2015.

Finch, Andrew. Unreal Game Engine: A Comprehensive Guide to Creating Playable Levels. 3D Total Publishing, 2014.

Sykut, Andrew, et al. Photoshop for 3D Artists; vol. 1. 3D Total Publishing, 2011.

https://80.lv/
80 Level: a website about the latest trends in the gaming industry.

https://www.cc0textures.com/
CC0 Textures by StruffelProductions: a site for public domain physically-based rendering (PBR) textures.

VIII. STUDENT MATERIALS FEES

[X] No [ ] Yes

IX. PARALLEL COURSES

College	*Course Number*	*Course Title*	*Units*
Berkeley City College	MMART 192	3D Rigging for Animation and Game Design	3
Glendale Community College	ART 230	Introduction to 3-D Computer Graphics	3

X. MINIMUM QUALIFICATIONS

Courses in Disciplines in which Masters Degrees are not expected:
Any bachelor's degree and two years of experience, or an associate degree and six years of experience in Game Design.

XI. ARTICULATION INFORMATION

A. Title V Course Classification:

1. This course is designed to be taken either:

   ☐ Pass/No Pass only (no letter grade possible); or
   ☒ Letter grade (P/NP possible at student option)

2. Degree status:
   Either ☒ Associate Degree Applicable; or ☐ Non-associate Degree Applicable

B. Moorpark College General Education:

1. Do you recommend this course for inclusion on the Associate Degree General Education list?
   Yes: ☐ No: ☒ If YES, what section(s)?

   ☐ A1 - Natural Sciences - Biological Science
   ☐ A2 - Natural Sciences - Physical Science
   ☐ B1 - Social and Behavioral Sciences - American History/Institutions
   ☐ B2 - Social and Behavioral Sciences - Other Social Behavioral Science
   ☐ C1 - Humanities - Fine or Performing Arts
   ☐ C2 - Humanities - Other Humanities
   ☐ D1 - Language and Rationality - English Composition
   ☐ D2 - Language and Rationality - Communication and Analytical Thinking
   ☐ E1 - Health/Physical Education
   ☐ E2 - PE or Dance
   ☐ F - Ethnic/Gender Studies

C. California State University(CSU) Articulation:

1. Do you recommend this course for transfer credit to CSU? Yes: ☒ No: ☐

2. If YES do you recommend this course for inclusion on the CSU General Education list?
   Yes: ☐ No: ☒ If YES, which area(s)?

   A1 ☐ A2 ☐ A3 ☐ B1 ☐ B2 ☐ B3 ☐ B4 ☐

   C1 ☐ C2 ☐ D1 ☐ D2 ☐ D3 ☐ D4 ☐ D5 ☐

   D6 ☐ D7 ☐ D8 ☐ D9 ☐ D10 ☐ E ☐

D. University of California (UC) Articulation:

1. Do you recommend this course for transfer to the UC? Yes: ☐ No: ☒

2. If YES do you recommend this course for the Intersegmental General Education Transfer Curriculum (IGETC)? Yes: ☐ No: ☒

   IGETC Area 1: English Communication

   ☐ English Composition
   ☐

- [ ] Critical Thinking-English Composition
- [ ] Oral Communication

IGETC Area 2: Mathematical Concepts and Quantitative Reasoning

- [ ] Mathematical Concepts

IGETC Area 3: Arts and Humanities

- [ ] Arts
- [ ] Humanities

IGETC Area 4: Social and Behavioral Sciences

- [ ] Anthropology and Archaeology
- [ ] Economics
- [ ] Ethnic Studies
- [ ] Gender Studies
- [ ] Geography
- [ ] History
- [ ] Interdisciplinary, Social & Behavioral Sciences
- [ ] Political Science, Government & Legal Institutions
- [ ] Psychology
- [ ] Sociology & Criminology

IGETC Area 5: Physical and Biological Sciences (mark all that apply)

- [ ] Physical Science Lab or Physical Science Lab only (none-sequence)
- [ ] Physical Science Lecture only (non-sequence)
- [ ] Biological Science
- [ ] Physical Science Courses
- [ ] Physical Science Lab or Biological Science Lab Only (non-sequence)
- [ ] Biological Science Courses
- [ ] Biological Science Lab course
- [ ] First Science course in a Special sequence
- [ ] Second Science course in a Special Sequence
- [ ] Laboratory Activity
- [ ] Physical Sciences

IGETC Area 6: Language other than English

- [ ] Languages other than English (UC Requirement Only)
- [ ] U.S. History, Constitution, and American Ideals (CSU Requirement ONLY)
- [ ] U.S. History, Constitution, and American Ideals (CSU Requirement ONLY)

XII. REVIEW OF LIBRARY RESOURCES

A. What planned assignment(s) will require library resources and use?

The following assignments require library resources:
Research, using the Library's print and online resources, on such topics as current video games industry trends, techniques, and best practices.

B. Are the currently held library resources sufficient to support the course assignment?

YES: [X] NO: [ ]

If NO, please list additional library resources needed to support this course.

XIII. PREREQUISITE AND/OR COREQUISITE JUSTIFICATION

XIV. WORKPLACE PREPARATION

Required for career technical courses only. A career technical course/program is one with the primary goal to prepare students for employment immediately upon course/program completion, and/or upgrading employment skills.

Detail how the course meets the Secretary of Labors Commission on the Achievement of Necessary Skills (SCANS) areas. (For a description of the competencies and skills with a listing of what students should be able to do, go to: http://www.ncrel.org/sdrs/areas/issues/methods/assment/as7scans.htm)

The course will address the SCANS competency areas:

1. Resources: the students will learn to set goals and time manage those goals to completion; learn what is required in a game design production so that they can plan to allocate resources.
2. Interpersonal: the students will instruct each other about those areas in which they are proficient and assess each other's skills in order to collaborate.
3. Information: the students will organize, interpret and communicate information acquired about game design technologies.
4. Systems: the students will understand the systems, and monitor and correct performance.
5. Technology: the students will choose visual technologies and perform proper procedures in the design production process.

The course also addresses the SCANS skills and personal qualities:

1. Basic Skills: the students will read and write documents, read textbooks, and listen and speak clearly.
2. Thinking Skills: the students will generate creative ideas, make decisions, and reason through and solve problems.
3. Personal Qualities: the students will be responsible, sociable, self-disciplined, honest, and will maintain integrity.

XV. DISTANCE LEARNING COURSE OUTLINE ADDENDUM

1. Mode of Delivery

[ ]

[X] Online (course will be delivered 100% online)

[X] Online with onsite examinations (100% of the instruction will occur online, but examinations and an orientation will be scheduled onsite)

[X] Online/Hybrid (a percentage of instruction will be held online and the remaining percentage of instruction will be held onsite)

[ ] Lab activities will be conducted onsite

[ ] Televideo (Examinations and an orientation will be held onsite)

[ ] Teleconference

[ ] Other

2. Need/Justification

   Improve general student access.

3. Describe how instructors teaching this course will ensure regular, effective contact with and among students.

   The instructor will communicate with students through the course management system, using both synchronous tools (such as chat) and asynchronous tools (such as email and discussions). Email is a tool primarily used for course-wide updates and individual student contact. Students and the instructor can privately contact each other with questions, concerns, etc. Discussion Forums will be used to disseminate course-wide information and facilitate ongoing collaborative course work. Students may also use the Discussion Forums to solicit help from the instructor and other students. Discussions may also be graded encouraging students to participate in the class. The Calendar and Announcement tools will be used to keep students informed of important events, deadlines, etc. Additional collaborative learning involves using software that allows students and the instructor to collaborate in real-time. These sessions may also be recorded and archived so that students who were not able to participate can also benefit from them. The instructor may talk with individual students or with student groups. Students may also collaborate with each other without the instructor.

4. Describe how instructors teaching this course will involve students in active learning.

   All course materials will be available online. Students will be able to download files and view them offline. Instructor may also provide course content within the course management system as well as provide links to supplemental publications, articles, and websites. Quizzes may be issued (using a course-specific timeline) in which students will be tested on their knowledge of the material. Assignments may include exercises through which students explore course concepts using a textbook and/or additional research. Students can submit their assignments online and get feedback from the instructor and/or other students as determined per assignment. This can be an iterative process in that students can receive feedback and then be able to improve their submittal if necessary. Email is a tool primarily used for course-wide updates and individual student contact. Students and the instructor can privately contact each other with questions, concerns, etc. Discussion Forums will be used to disseminate course-wide information and facilitate ongoing collaborative course work. Students may also use the Discussion Forums to solicit help from the instructor and other

students. Discussions may also be graded encouraging students to participate in the class. Additional collaborative learning involves using software that allows students and the instructor to collaborate in real-time. These sessions may also be recorded and archived so that students who were not able to participate can also benefit from them. The instructor may talk with individual students or with student groups. Students may also collaborate with each other without the instructor.

5. Explain how instructors teaching this course will provide multiple methods of content representation.

   The instructor can provide text, presentation slides, audio/visual material, assignment examples, tutorials (which may be live or recorded), and links to supplemental publications, articles, and websites.

6. Describe how instructors teaching this course will evaluate student performance.

   Student evaluation will occur via standard techniques such as exercises, projects, quizzes, and a program rubric. The online environment will allow the exercises and projects to be iterative so that students may submit their work online and receive feedback from the instructor. The instructor can then communicate critique and/or solutions to students by posting them online. Additionally, graded discussions can be used to provide additional means of assessment.

XVI. GENERAL EDUCATION COURSE OUTLINE ADDENDUM

GAME M105: Not Applicable

XVII. STUDENT MATERIALS FEE ADDENDUM

GAME M105: Not Applicable

XVIII. REPEATABILITY JUSTIFICATION TITLE 5, SECTION 55041

GAME M105: Not Applicable

XIX. CURRICULUM APPROVAL

Course Information:

Discipline: GAME DESIGN

Discipline Code and Number: GAME M105

Course Revision Category: New Course

Course Proposed By:

Originating Faculty Tim Samoff 07/02/2018

Faculty Peer: _____

Curriculum Rep: _____

Department Chair: Rolland Petrello 08/20/2018

Division Dean: Jennifer Goetz 08/18/2018

Approved By:

Curriculum Chair: Jerry Mansfield 12/07/2018

Executive Vice President: _____

Articulation Officer: Letrisha Mai 11/15/2018

Librarian: Mary LaBarge 11/14/2018

Implementation Term and Year: Fall 2019

Approval Dates:

Approved by Moorpark College Curriculum Committee: 11/20/2018

Approved by Board of Trustees (if applicable): 02/19/2019

Approved by State (if applicable): 02/22/2019