Modesto Junior College
Course Outline of Record

CMPGR 226

I. OVERVIEW
The following information will appear in the 2010 - 2011 catalog

CMPGR 226 3D Graphics and Animation 2 3 Units

Recommended for Success: Before enrolling in this course, students are strongly advised to have successfully completed CMPGR 225.

Continued development of 3D modeling and animation skills. Storyboarding, integration of 3D software with other industry standard applications. Finished animation production techniques.

Three maximum completions.
Field trips might be required. (A-F or P/NP - Student choice) Lecture /Lab
Transfer: (CSU)

II. LEARNING CONTEXT
Given the following learning context, the student who satisfactorily completes this course should be able to achieve the goals specified in Section III, Desired Learning:

A. COURSE CONTENT

1. Required Content:

1. DEVELOPING AND PRESENTING A CONCEPT - The art of developing an original idea.

2. STORYBOARDING - Developing the skills to visualize and present one’s concept in the simple yet vital format of storyboards.

3. CINEMATIC CONCEPTS - Providing a brief introduction to the language of film, i.e. composition, camera movement, 3- point lighting, etc.

4. PRODUCTION SCHEDULING - Establishing a timeline, discussing the production pipeline, and the reality of deadlines.

5. ADVANCED MODELING - Polygon, NURBS, Subdivision modeling. Creating customized surfaces through extrusion, lofting, revolving, and birailing.

6. ADVANCED RIGGING - Creating skeletal structures and inverse kinematics controls within models to control movement.

7. ADVANCED ANIMATION - lessons in animated movement through keyframes and motion curve editing. Both forward and inverse kinematics will be discussed and demonstrated.

8. ADVANCED LIGHTING - classic 3-point lighting concepts will be taught. Exploring effective light coloring and placement and use of shadows.

9. ADVANCED SHADING AND TEXTURING - UV mapping. Creating convincing “skins” and materials through shaders and bumpmaps.

10. ADVANCED CAMERA WORK - Lessons in camera angles and composition and the skills of creating effective camera movements through keyframes. Dolly, track, and tumble tools will be fully utilized.

11. ADVANCED RENDERING - Creating the image components and outputting to a post-production-ready format. Discussing the use of alpha channels.
12. ADVANCED COMPOSITING - Bringing all image components together into one cohesive whole. Use of Adobe AfterEffects.

13. CREATING EFFECTIVE TITLE SEQUENCES - Setting the mood and closing the piece with title sequences that will reflect the nature of the piece.

14. SOUND EFFECTS AND MUSIC - The fourth dimension of animation. Adding depth through the use of audio techniques. Use of Adobe Premiere.

15. EDITING - Discussions on the art of visual storytelling. Making final adjustments to shot transitions and timing. Use of Adobe Premiere and AfterEffects.

16. OUTPUT TO FINAL MEDIUM - output to digital form, i.e. DVD, mini-DV, etc.

17. PUBLIC SCREENING - the culmination of a semester’s hard work.

2. Required Lab Content:

1. DEVELOPING AND PRESENTING A CONCEPT - The art of developing an original idea.

2. STORYBOARDING - Developing the skills to visualize and present one’s concept in the simple yet vital format of storyboards.

3. CINEMATIC CONCEPTS - Providing a brief introduction to the language of film, i.e. composition, camera movement, 3-point lighting, etc.

4. PRODUCTION SCHEDULING - Establishing a timeline, discussing the production pipeline, and the reality of deadlines.

5. ADVANCED MODELING - Polygon, NURBS, Subdivision modeling. Creating customized surfaces through extrusion, lofting, revolving, and birailing.

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16. OUTPUT TO FINAL MEDIUM - output to digital form, i.e. DVD, mini-DV, etc.
17. PUBLIC SCREENING - the culmination of a semester’s hard work.

B. ENROLLMENT RESTRICTIONS

1. Advisories

Before enrolling in this course, students are strongly advised to have successfully completed CMPGR 225.

C. HOURS AND UNITS

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D. METHODS OF INSTRUCTION (TYPICAL)

Instructors of the course might conduct the course using the following method:

1. Lecture/lab demonstrations
2. Hands-on laboratory assignments
3. Use of electronic and hard copy reference documents and books to accomplish assigned tasks
4. Written Assignments
5. Streaming video tutorials
6. Reading Assignments

E. ASSIGNMENTS (TYPICAL)

1. EVIDENCE OF APPROPRIATE WORKLOAD FOR COURSE UNITS
   Time spent on coursework in addition to hours of instruction (lecture hours)

   1. Weekly assignments involve a sequence of increasingly sophisticated skills in modeling, lighting, animation and production. The finished sequence will be turned in prior to each class for in-class critique and weekly evaluation.

   2. A final short film project will require integration of all skills learned and exercised during the semester.

2. EVIDENCE OF CRITICAL THINKING
   Assignments require the appropriate level of critical thinking

   1. Translate a written concept into the visual medium of a storyboard.
   2. Determine a rigging and animation approach which will convey a specific modification of a walk cycle. For example: stroll, sneak, run, stagger.

   3. Determine an arrangement of scene lights which will achieve an effective value composition.

   4. Select music and sound appropriate to the mood of the visual elements. Incorporate and modify with multi-track editing tools to achieve a polished result.

   5. Edit the generated footage to achieve viewer impact, exploring the effects of shorter or longer
F. TEXTS AND OTHER READINGS (TYPICAL)


III. DESIRED LEARNING

A. **COURSE GOAL**

As a result of satisfactory completion of this course, the student should be prepared to:

produce a finished 3D animated short film. The student will have experienced the entire production pipeline from storyboard to modeling, rigging, lighting, animating, rendering and DVD production.

B. **STUDENT LEARNING GOALS**

Mastery of the following learning goals will enable the student to achieve the overall course goal.

1. **Required Learning Goals**

   Upon satisfactory completion of this course, the student will be able to:

   a. visualize and present concepts via storyboards
   b. demonstrate polygon, nurb and subdivision modeling
   c. create working rigging and inverse kinematics
   d. demonstrate classic 3-point lighting setups
   e. create material textures using bump mapping and shaders
   f. export animated elements and alpha masks to a post production environment
   g. add sound effects and music to a finished production
   h. Master a final digital product in DVD or other formats

2. **Lab Learning Goals**

   Upon satisfactory completion of the lab portion of this course, the student will be able to:

   a. visualize and present concepts via storyboards.
   b. demonstrate polygon, nurb and subdivision modeling.
   c. create working rigging and inverse kinematics.
   d. demonstrate classic 3-point lighting setups.
   e. create material textures using bump mapping and shaders.
   f. export animated elements and alpha masks to a post production environment.
   g. add sound effects and music to a finished production.
   h. Master a final digital product in DVD or other formats.
   i. **SECOND COMPLETION:**
   j. demonstrate updated skills reflecting current industry standards as software tools, interface and functions evolve in new versions.
k. THIRD COMPLETION:

l. demonstrate updated skills reflecting current industry standards as software tools, interface and functions evolve in new versions.

IV. METHODS OF ASSESSMENT (TYPICAL)

A. FORMATIVE ASSESSMENT

1. Weekly assignments will be exercises in modeling and animation with a new goal for each project

2. Weekly critique of student projects

B. SUMMATIVE ASSESSMENT

1. Clearly written proposal for a final production which demonstrates written knowledge of all required aspects of production and editing

2. A final production which requires the student to clearly demonstrate all aspects of the entire semester's projects

3. Successful mastering and production of a finished DVD of the final production as well as a demo reel of the semester's work