MMART 505A, Introduction to Motion Graphics

0 Units

2.5 hours lecture, 1.5 hours lab (P/NP or SP)

AA/AS area 4c

Introduction to motion graphics and 2D animation for the current industry standards: Importing source files including photographs, illustrations, video clips and 3D animation; compositing source imagery, keyframing, animating, and effects; compression and outputting for video and web; critical discussion and assessment of work on technical, aesthetic, conceptual, and philosophical level. 0614.10

MULTIMEDIA ARTS Animation and Game Design

Associate in Arts Degree

Berkeley City College's A.A. degree in Animation and Game Design prepares students for entry-level jobs in the game and animation fields and provides upgraded skills for those already employed in multimedia and game jobs. The program is interdisciplinary and focuses on developing artistic, animation, critical thinking and computer skills.

Career Opportunities

Medical visualization, game, pre-visualization, game level design, 3D modeling, technical direction, 2D animation, 3D animation, computer graphics special effects, layout design, look development, character/ prop/background design, scene planning/ compositing, production, environmental/set design, and visual simulation.

Required Core Courses for all Multimedia A.A. degrees:		*Units*
MMART 3	Introduction to Digital Art	3
MM/AN 40A	Introduction to Game Design	3
MM/MW 1A+1LA	Introduction to Web Design + Lab	3
MM/VI 9A	Video Production I: Introduction to Video	4

Core Electives. Select 6–7 units.		*Units*
MMART 1	Design Thinking	3
MMART 110	Scriptwriting and Storyboarding	3
MMART 197	Multimedia Career Preparation	3
MMART 468	Occupational Work Experience in Multimedia Arts	1
MM/DI 3+3L	Contemporary Color+Lab	3
MM/DI 4+4L	Introduction to Photoshop+Lab	3
MM/MW 2+2L	Fundamentals of Graphic Visualization+Lab	3
MM/MW 4A+4LA	Social Media Marketing and Data Analytics+Lab	3

Required Courses for Animation+Game Design:		*Units*
MM/AN 1A	Drawing for Animation	3
MM/AN 3A	Introduction to 2D Animation	3
MM/AN 20A	Introduction to 3D Animation	3
MM/AN 21A	Introduction to 3D Modeling	3

Animation Electives. Select 9 units from the following:		*Units*
ART 30	Beginning Figure Drawing: Anatomy	2
MMART 5A	Introduction to Motion Graphics	3
MM/AN 2	History of Animation	3
MM/AN 3B	Intermediate 2D Animation	3
MM/AN 4	2D Digital Animation	3
MM/AN 41A	Introduction to Game Scripting	3
MM/AN 55A	Animation & Game Studio Practice	1
MM/AN 55B	Animation & Game Studio Practice	1
MM/DI 4+4L	Introduction to Photoshop+ Lab	3
	Major Requirements	40–41
	General Education and Electives	19–20
	Credit Hours:	(0 Required)
	Total:	**60**

Recommended Two-Year Course Sequence Beginning in Fall Semester

Students can use the following pattern to complete an Associate in Arts degree in Multimedia Arts—Animation and Game Design. This is only one possible pattern. If they wish to earn an associate degree, you must participate in the Student Success Program (Matriculation), which includes assessing academic skills and developing a Student Education Plan (SEP) with a Counselor. This plan will map their sequence of courses to help them complete their degree regardless of the semester they begin classes.

Course		*Units*
1st semester/Fall		
MMART 3	Introduction to Digital Art	3
MM/AN 1A	Drawing for Animation	3
MM/VI 9A	Video Production: Introduction to Video	4
	Core Elective	3
	General Education/Electives	3
	Total	**16**
2nd Semester/Spring		
MM/AN 3A	Introduction to 2D Animation	3
MM/AN 40A	Introduction to Game Design	3
	Core Elective	3
	General Education/Elective	5
	Total	**14**
3rd Semester/Fall		
MM/AN 20A	Introduction to 3D Animation	3
	Animation Elective	6
	General Education/Elective	6
	Total	**15**
4th Semester/Spring		
MM/AN 21A	Introduction to 3D Modeling	3
MM/MW 1A+LA	Introduction to Web Design	3
	Animation Elective	3
	General Education/Elective	6
	Total	**15**

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Demonstrate entry-level skills in animation through completed portfolio level projects in both visual and written context related to Animation and Game Design.
- Describe, plan and evaluate design principles, aesthetic forms, historical context and social relevance of multimedia works.
- Collaborate effectively within a diverse team environment.

Animation Level I

Certificate of Achievement

The Multimedia Arts Certificates of Achievement in Animation are available at Level I and Level II. The Animation Certificates of Achievement are a comprehensive study of 2D and 3D animation techniques, allowing students to choose from a range of 2D and 3D courses in order to prepare for an entry level position in the industry.

Career Opportunities

Entry level positions in various fields of Animation, Game, Medical Visualization and Simulation as Animators, 3D modelers and pre-visualization artists and preparation for transfer to a 4 year institution.

Required Courses		*Units*
MM/AN 3A	**Introduction to 2D Animation**	**3**
MM/AN 20A	**Introduction to 3D Animation**	**3**
MM/AN 50	**Career Preparation for Animation and Game Industries**	**3**

Select 9–11 units from below:		*Units*
MMART 5A	Introduction to Motion Graphics	3
MM/AN 1A	Drawing for Animation	3
MM/AN 1B	Storytelling in Animation	3
MM/AN 2	History of Animation	3
MM/AN 3B	Intermediate 2D Animation	3
MM/AN 4	2D Digital Animation	3
MM/AN 10	Experimental Animation	3
MM/AN 21A	Introduction to 3D Modeling	3
MM/AN 55A	Animation and Game Studio Practice	1
MM/AN 55B	Animation and Game Studio Practice	1
	Total:	**18–20**

Recommended One-Year Course Sequence Beginning in the Fall Semester

Students can use the following pattern to complete a Certificate of Achievement in Multimedia Arts Core. This is only one possible pattern. If they wish to earn a certificate, you must participate in the Student Success Program (Matriculation), which includes assessing academic skills and developing a Student Education Plan (SEP) with a Counselor. This plan will map their sequence of courses to help them complete their degree regardless of the semester they begin classes.

Course		*Units*
1st Semester/Fall		
MM/AN 3A	Introduction to 2D Animation	3
MM/AN 20A	Introduction to 3D Animation	3
	Animation Elective	3
	Total	9
2nd Semester/Spring		
MM/AN 50	Career Preparation for Animation and Game Industries	3
	Animation Elective	**6**
	Total	**9**

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Demonstrate entry level skills in Animation through the completion of individual and team projects.
- Describe, plan and evaluate design principles, aesthetic forms and historical context of Animated works.
- Create complete projects utilizing 2D/3D techniques.

Animation Level II

Certificate of Achievement

The Multimedia Arts Certificates of Achievement in Animation are available at Level I and Level II. The Animation Certificates of Achievement are a comprehensive study of 2D and 3D animation techniques, allowing students to choose from a range of 2D and 3D courses in order to prepare for an entry level position in the industry.

Career Opportunities

Entry level positions in various fields of animation, game, medical visualization and simulation such as animation, concept arts, production assistance, 3D modeling, pre-visualization arts, 3D rigging, and computer graphics, as well as preparation for transfer to a 4 year institution.

Required Courses		*Units*
MM/AN 3B	Intermediate 2D Animation	3
MM/AN 20B	3D Character Animation	3
MM/AN 25	Animation Production	3

Select 9 units from below:		*Units*
MM/AN 1B	Storytelling in Animation	3
MM/AN 4	2D Digital Animation	3
MM/AN 10	Experimental Animation	3
MM/AN 21B	Intermediate 3D Modeling	3
MM/AN 22A	3D Layout and Lighting	3
MM/AN 22B	Special Effects for Animation	3
MM/AN 23	3D Rigging	3
MM/AN 24	Performance Animation	3
	Total:	**18**

Recommended One-Year Course Sequence Beginning in the Fall Semester

Students can use the following pattern to complete a Certificate of Achievement in Multimedia Arts Core. This is only one possible pattern. If they wish to earn a certificate, you must participate in the Student Success Program (Matriculation), which includes assessing academic skills and developing a Student Education Plan (SEP) with a Counselor. This plan will map their sequence of courses to help them complete their degree regardless of the semester they begin classes.

Course		*Units*
1st Semester/Fall		
MM/AN 3B	Intermediate 2D Animation	3
MM/AN 20B	3D Character Animation	3
	Animation Elective	3
	Total	**9**
2nd Semester/Spring		
MM/AN 25	Animation Production	3
	Animation Elective	6
	Total	**9**

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Demonstrate entry level skills in Animation through the completion of individual and team projects.
- Analyze, document, plan and evaluate a budget for a short production.
- Collaborate within a diverse team environment.

Game Design Level I

Certificate of Achievement

The Multimedia Arts Certificates of Achievement in Game Design are available at Level I and Level II. Students who have little background in game design are encouraged to complete Level I prior to Level II. The Game Design Level I Certificate of Achievement provides introductory technical training in game design and programming techniques, allowing students to prepare for positions in the industry such as pre-visualization and game testing.

Career Opportunities

Pre-visualization, game testing, technical artist.

Required Courses		*Units*
MM/AN 21A	Introduction to 3D Modeling	3
MM/AN 40A	Introduction to Game Design	3
MM/AN 50	Career Preparation for Animation and Game Industries	3

Select 11–13 units from below:		*Units*
CIS 6	Introduction to Computer Programming	5
MM/AN 22A	3D Layout and Lighting	3
MM/AN 41A	Introduction to Game Scripting	3
		3
MM/AN 55A	Animation and Game Studio Practice	1
MM/AN 55B	Animation and Game Studio Practice	1
	Total:	**20–22**

Recommended One-Year Course Sequence Beginning in the Fall Semester

Students can use the following pattern to complete a Certificate of Achievement in Multimedia Arts Game Design Level 1. This is only one possible pattern. If they wish to earn a certificate, you must participate in the Student Success Program (Matriculation), which includes assessing academic skills and developing a Student Education Plan (SEP) with a Counselor. This plan will map their sequence of courses to help them complete their degree regardless of the semester they begin classes.

Course		*Units*
1st Semester/Fall		
MM/AN 21A	Introduction to 3D Modeling	3
MM/AN 40A	Introduction to Game Design	3
	Game Design Electives	3–5
	Total	**9–14**
2nd Semester/Spring		
MM/AN 50	Career Preparation for Animation and Game Industries	3
	Game Design Electives	8
	Total	**11**

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Demonstrate entry level skills in Level Design through the completion of individual and team projects.
- Apply programming elements as they relate to computer graphics.
- Create an interactive game in either a 2D or 3D environment.

Game Design Level II

Certificate of Achievement

The Multimedia Arts Certificates of Achievement in Game Design are available at Level I and Level II. Students who have little background in game design are encouraged to complete Level I prior to Level II. The Game Design Level II Certificate of Achievement provides comprehensive technical training in game design, prototyping, and programming techniques, allowing students to prepare for entry level positions in various fields of game, medical visualization and simulation industries as level designers, technical artists, and production assistants.

Career Opportunities

Entry level positions in various fields of Game, Medical Visualization and Simulation industries as level designers, technical artists, and production assistants.

Required Courses		*Units*
CIS 23	C# Programming	4
MM/AN 40B	Game Level Design	3
MM/AN 41B	Video Game Development	3
MM/AN 044	Applications of Virtual and Augmented Reality	3

Select 6–8 units from below:		*Units*
MM/AN 23	3D Rigging	3
MM/AN 21B	Intermediate 3D Modeling	3
MM/AN 50	Career Preparation for Animation and Game Industries	3
MM/AN 55A	Animation and Game Studio Practice	1
MM/AN 55B	Animation and Game Studio Practice	1
	Total:	**19–21**

Recommended One-Year Course Sequence Beginning in the Fall Semester

Students can use the following pattern to complete a Certificate of Achievement in Multimedia Arts Game Design Level II. This is only one possible pattern. If they wish to earn a certificate, you must participate in the Student Success Program (Matriculation), which includes assessing academic skills and developing a Student Education Plan (SEP) with a Counselor. This plan will map their sequence of courses to help them complete their degree regardless of the semester they begin classes.

Course		*Units*
1st Semester/Fall		
CIS 23	C# Programming	4
MM/AN 40B	Introduction to Game Design	3
	Game Design Elective	3
	Total	**10**
2nd Semester/Spring		
MM/AN 41B	Video Game Development	3
MM/AN 44	Applications of Virtual and Augmented Reality	3
	Game Design Elective	3
	Total	**9**

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Demonstrate entry level skills in game design through the completion of individual and team projects.
- Apply basic programming elements as they relate to computer graphics.
- Synthesize information from traditional and electronic sources into a game document and business report.

Motion Graphics

Certificate of Achievement

The Certificate of Achievement will prepare students with key multimedia skills necessary for employment and enrichment. This certificate emphasizes motion graphics utilizing both 2D and 3D skills.

Career Opportunities

Motion graphic designer, motion graphic artist, motion graphics editor, motion designer, multimedia designer, graphic designer, presentation specialist, ui/ux artist or a production artist.

Required courses		*Units*
MMART 1	Design Thinking	3
MMART 3	Introduction to Digital Art	3
MMART 5A	Introduction to Motion Graphics	3
MM/DI 015A	Introduction to 3D Motion Graphics	3
MM/VI 020A+ 20LA	Editing I: Introduction to Video Editing	3

Select 6 units from the following:		*Units*
MMART 5B	Intermediate Motion Graphics	3
MM/AN 4	2D Digital Animation	3
MM/AN 50	Career Preparation for Animation & Game Industries	3
MM/AN 55A	Animation and Game Studio Practice	1
MM/AN 55B	Animation and Game Studio Practice	1
MM/DI 2	Sketching Fundamentals for Design	3
MM/DI 4+4L	Introduction to Photoshop	3
MM/DI 15B	Intermediate 3D Motion Graphics	3
MM/DI 20A+ 20LA	Introduction to Digital Photography	3
MM/DI 33	Typography Design	3
	Total Units:	**21**

Recommended One-Year Course Sequence Beginning in the Fall semester

Students can use the following pattern to complete a Certificate of Achievement in Motion Graphics. This is only one possible pattern. If you wish to earn a certificate, you must participate in the Student Success Program (Matriculation), which includes assessing academic skills and developing a student Education Plan (SEP) with a counselor. This plan will map your sequence of courses to help you complete your certificate regardless of the semester you begin classes.

Course		*Units*
1st Semester/Fall		
MMART 1	Design Thinking	3
MMART 3	Introduction to Digital Art	3
MMART 5A	Introduction to Motion Graphics	3
MM/DI 15A	Introduction to 3D Motion Graphics	3
2nd Semester/Spring		
MM/VI 20A+20LA	Introduction to Editing and Lab	3
	Electives	6

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

1. Demonstrate knowledge of the use of digital multimedia equipment and/or software programs for creating and editing multimedia works in basic motion graphics.
2. Demonstrate the use of digital art techniques to generate creative solutions to problems expand and transform imagery and ideas into meaningful multimedia works, as appropriate to the certificate.

Character Design and 3D Modeling

Certificate of Proficiency

The Multimedia Certificate of Proficiency in Character Design and 3D Modeling establishes the backbone of a career in 3D modeling and asset creation for animation, game, and simulation.

Career Opportunities

Character development, character modeling, 3D modeler, character and prop design, asset creation for game and simulation.

Required courses		*Units*
MM/AN 1B	Storytelling in Animation	3
MM/AN 19	Character Design and Model Construction	3
MM/AN 21A	Introduction to 3D Modeling	3
MM/AN 21B	Intermediate 3D Modeling	3
	Total:	**12**

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Critically evaluate advanced 3D modeling techniques and their effective use in 3D animation, game, and simulation presentations.
- Design a character based on a written description.

Introduction to Animation and Game Design

Certificate of Completion

The Certificate of Completion in Animation and Game Design prepares students with animation, modeling, and level design skills necessary for employment within the field of game design.

Career Opportunities

Animation production houses, game production houses, webisode production companies, commercial visualization companies (legal, medical, industry) and post-production companies. Jobs could include: Junior 3D Modeler, Animator, Junior Game Level Designer.

Required Courses		*Units*
MM/AN 510	Introduction to 3D Modeling	0
MM/AN 511	3D Character Animation	0
MM/AN 512	Game Level Design	0
MM/AN 550	Animation and Game Studio Practice	0

Introduction to Motion Graphics

Certificate of Completion

This certificate builds skills in motion graphics utilizing both 2D and 3D skills.

Career Opportunities

Production artist, motion graphic designer, graphic designer, presentation specialist

Courses		*Units*
MM/DI 504A	Introduction to Digital Illustration	0
MMART 505A	Introduction to Motion Graphics	0
MM/DI 515A	Introduction to 3D Motion Graphics	0
MM/DI 550	Design Studio Practice	0

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

1. Demonstrate knowledge of the use of digital multimedia equipment and/or software programs for creating and editing multimedia works in basic motion graphics.
2. Demonstrate the use of digital art techniques to generate creative solutions to problems and expand and transform imagery and ideas into meaningful multimedia works, as appropriate to the certificate.

MM/AN 1A, Drawing for Animation

3 Units

2.5 hours lecture, 1.5 hours lab (GR or P/NP)

Acceptable for credit: CSU

AA/AS area 4c

Freehand drawing techniques in traditional animation: Gesture drawing, designing key poses, drawing figures in motion, capturing motion in fast sketches, analysis and development of motion paths. Not open for credit to students who have completed MMART 178. 0614.40

MM/AN 1B, Storytelling in Animation

3 Units

2.5 hours lecture, 1.5 hours lab (GR or P/NP)

Acceptable for credit: CSU

AA/AS area 4c

Animated project design using storytelling elements, improvisation and brainstorming: Developing effective characters, story arcs, primary and secondary action, pacing and layout. Not open for credit to students who have completed MMART 116. 0614.40

MM/AN 2, History of Animation

3 Units

3 hours lecture (GR or P/NP)

Acceptable for credit: UC/CSU

AA/AS area 4c; CSU area C1

History of animation through its social context and impact since its inception: Roots of animation before film technology to modern commercial and artistic animated productions; aesthetics and visual styles in different genres of animation.

0614.40

MM/AN 3A, Introduction to 2D Animation

3 Units

2.5 hours lecture, 1.5 hours lab (GR or P/NP)

Acceptable for credit: CSU

AA/AS area 4c

Introduction to the principles of 2D animation: Creating characters; drawing key poses and in-betweens; designing movement paths, pose manipulation and cycles; timing movement based on sound tracks; utilizing storyboards and dynamic composition to create animated scenes; testing motion studies and scene storytelling with software. Not open for credit to students who have completed MMART 177. 0614.40

MM/AN 3B, Intermediate 2D Animation

3 Units

2.5 hours lecture 1.5 hours lab (GR or P/NP)

Prerequisite: MM/AN 3A

Acceptable for credit: CSU

AA/AS area 4c

Project-based study of 2D animation: Developing movement based on the principles of animation; designing characters; timing based on lip-syncing; rotoscoping; coordinating sound to animated shorts and exploring the themes of American animation history. Not open for credit to students who have completed MMART 1
87.

0614.40

MM/AN 4, 2D Digital Animation

3 Units

2.5 hours lecture 1.5 hours lab (GR or P/NP)

Acceptable for credit: CSU

AA/AS area 4c

2D animation using a vector-based imaging and animation program: Survey of traditional animation techniques; importing graphics; creating and manipulating symbols; using keyframes; designing motion paths; using Motion Tweens and Shape Tweens to animate symbols; and publishing the animations to various formats. Not open for credit to students who have completed MMART 186.
0614.40

MM/AN 10, 2D Experimental Animation

3 Units

2.5 hours lecture 1.5 hours lab (GR or P/NP)

Recommended Preparation: MM/AN 3A

Acceptable for credit: CSU

AA/AS area 4c

Exploration of alternative forms of traditional animation: Analysis and application of the techniques of claymation; stop-motion, paper cut-outs, puppets, color sand, mixed media, and set construction and sculpture; digital video manipulation. Not open for credit to students who have completed MMART 181.
0614.40

MM/AN 19, Character Design and Model Construction

3 Units

2 hours lecture, 4 hours lab (GR or P/NP)

Acceptable for credit: CSU

AA/AS area 4c

Character design and model construction: Creation of dynamic 3D character models from conceptual Sketches and model sheets to 3D forms using real-world materials as used in animation and gaming to pre-visualize 3D designs in a physical form. 0614.40

MM/AN 20A, Introduction to 3D Animation

3 Units

2.5 hours lecture 1.5 hours lab (GR or P/NP)

Acceptable for credit: CSU

AA/AS area 4c

Introduction to the theory, history and production techniques of 3D Animation: Pre-production through post-production and deliverables; considerations for game and other industries. Not open for credit to students who have completed MMART 188. 0614.40

MM/AN 20B, 3D Character Animation

3 Units

2.5 hours lecture 1.5 hours lab (GR or P/NP)

Recommended Preparation: MM/AN 020A

Acceptable for credit: CSU

AA/AS area 4c

Study and practice of creating the illusion of life through techniques of 3D Animation: Application of theory to practical scene work with an emphasis on movement and acting in animated characters. Not open for credit to students who have completed MMART 189.
0614.40

MM/AN 21A, Introduction to 3D Modeling

3 Units

2.5 hours lecture 1.5 hours lab (GR or P/NP)

Recommended Preparation: MM/AN 020A

Acceptable for credit: CSU

AA/AS area 4c

Introduction to 3D Modeling: Principles and techniques of digital modeling in polygons, NURBS, and subdivision surfaces; applications of textures, materials, and lighting to models; rendering with appropriate materials, lighting and cameras. Not open for credit to students who have completed MMART 191. 0614.40

MM/AN 21B, Intermediate 3D Modeling

3 Units

2.5 hours lecture 1.5 hours lab (GR or P/NP)

Prerequisite: MM/AN 021A

Acceptable for credit: CSU

AA/AS area 4c

Design and construction of digital characters and environments: Creation of production-ready 3D models using organic and hard surface modeling techniques covering the principles of digital sculpting as well as methods for optimizing models for 3D game engines. Not open to students who are in or completed MMART 191. 0614.40

MM/AN 22A, 3D Layout and Lighting

3 Units

2.5 hours lecture 1.5 hours lab (GR or P/NP)

Prerequisite: MM/AN 020A

Recommended Preparation: MM/AN 021A

Acceptable for credit: CSU

AA/AS area 4c

Dynamic composition and visual development for animation: Use of camera angles and perspective to stage effective layouts; application of storytelling elements, research, lighting, color theory and basic design principles. Not open for credit to students who have completed MMART 179. 0614.40

MM/AN 22B, Special Effects for Animation

3 Units

2.5 hours lecture 1.5 hours lab (GR or P/NP)

Prerequisite: MM/AN 020A

Recommended Preparation: MM/AN 021A

Acceptable for credit: CSU

AA/AS area 4c

Production of 2D/3D visual effects animation: Live action and animation application, design and planning special effects based on natural phenomena; animation of 2D/3D objects and effects to be composited into animated scenes or video footage. Not open for credit to students who have completed MMART 180.
0614.40

MM/AN 23, 3D Rigging

3 Units

2.5 hours lecture 1.5 hours lab (GR or P/NP)

Prerequisite: MM/AN 020A

Recommended Preparation: MM/AN 021A

Acceptable for credit: CSU

AA/AS area 4c

Technical development of effective animation controls for 3D models and characters: Use of set driven keys, deformers, constraints and kinematic controls, including the exporting of rigged characters and objects to a game/simulation platform. Not open for credit to students who have completed MMART 192.
0614.40

MM/AN 24, Performance Animation

3 Units

2.5 hours lecture, 1.5 hours lab (GR or P/NP)

Prerequisite: MM/AN 20A

Recommended Preparation: MM/AN 20B

Acceptable for credit: CSU

AA/AS area 4c

Performance animation: Acting techniques with applications to character animation, scene construction, and storytelling; exploration of motivation in creating movement and gesture and how this relates to believable characterization for animation. 0614.40

MM/AN 25, Animation Production

3 Units

2.5 hours lecture 1.5 hours lab (GR or P/NP)

Prerequisite: MM/AN 020A

Recommended Preparation: MM/AN 020B, 021A

Acceptable for credit: CSU

AA/AS area 4c

Creating a short animated piece from design through production: Team dynamics, acting, visual storytelling, working with clients, and completing a short animated project in 2D/2.5D or 3D depending on story. Not open for credit to students who have completed MMART 194.
0614.40

MM/AN 40A, Introduction to Game Design

3 Units

2.5 hours lecture 1.5 hours lab (GR or P/NP)

Acceptable for credit: UC/CSU

AA/AS area 4c

Introduction to game theory and interactive computer game design: Analysis and application of the concepts of pattern recognition, spatial reasoning, branching storytelling, interactive parameters, interface design through the uses of flowcharts, storyboards, story scripts and programming languages. Not open for credit to students who have completed MMART 175B.
0614.20

MM/AN 40B, Game Level Design

3 Units

2.5 hours lecture 1.5 hours lab (GR or P/NP)

Prerequisite: MM/AN 040A

Acceptable for credit: CSU

AA/AS area 4c

Creation of levels for games and simulations: Level design, architecture theory, concepts of critical path and flow, balancing, play testing, and storytelling. Not open for credit to students who have completed MMART 193. 0614.20

MM/AN 41A, Introduction to Game Scripting

3 Units

2.5 hours lecture 1.5 hours lab (GR or P/NP)

Recommended Preparation: MM/AN 040A

Acceptable for credit: CSU

AA/AS area 4c

Scripting and programming for visual artists: Fundamental scripting techniques for integrated graphical development environments, including computer modeling, animation, video game and other visual media. Not open for credit to students who have completed MMART 182. 0614.20

MM/AN 41B, Video Game Development

3 Units

2.5 hours lecture 1.5 hours lab (GR or P/NP)

Recommended Preparation: MM/AN 041A

Acceptable for credit: CSU

AA/AS area 4c

Video game development utilizing tools to create interactive game components: Application of 2D and 3D physics engines, menu systems, and animations towards creating a video game. Not open for credit to students who have completed MMART 152C.
0614.20

MM/AN 44, Applications of Virtual and Augmented Reality

3 Units

2.5 hours lecture, 1.5 hours lab (GR or P/NP)

Prerequisite: MM/AN 40A

Recommended Preparation: MM/AN 41A

Acceptable for credit: CSU

AA/AS area 4c

Applications of virtual and augmented reality: Development and creation of virtual worlds and augmented reality applications and simulations utilizing game engines. 0614.20

MM/AN 50, Career Preparation for Animation and Game Industries

3 Units

2.5 hours lecture, 1.5 hours lab (GR or P/NP)

Prerequisite: MM/AN 3A

Recommended Preparation: MM/AN 20A and MM/AN 40A

Acceptable for credit: CSU

AA/AS area 4c

Preparation for animation and game industry job market and gig economy: Job search techniques, resume, and cover letter writing skills and a demo reel to result in a completed marketing package. 0614.40

MM/AN 55A, Animation and Game Studio Practice

1 Unit

4 hours lab (GR or P/NP)

Acceptable for credit: CSU

AA/AS area 4c

Animation and game studio practice: Individual instruction on development of projects within the field of animation and game design.
0614.40

MM/AN 55B, Animation and Game Studio Practice

1 Unit

4 hours lab (GR or P/NP)

Acceptable for credit: CSU

AA/AS area 4c

Animation and game studio practice: Individual instruction on the development of projects within the field of animation and game design.
0614.40

MM/AN 510, Introduction to 3D Modeling

0 units

2.5 hours lecture, 1.5 hours lab (P/NP or SP)

Introduction to 3D Modeling: Principles and techniques of digital modeling in polygons, NURBS, and subdivision surfaces; applications of textures, materials, and lighting to models; rendering with appropriate materials, lighting, and cameras. 0614.40

MM/AN 511, 3D Character Animation

0 Units

2.5 hours lecture, 1.5 hours lab. (P/NP or SP)

Study and practice of creating the illusion of life through techniques of 3D Animation: Application of theory to practical scene work with an emphasis on movement and acting in animated characters.
0614.40

MM/AN 512, Game Level Design

0 Units

2.5 hours lecture, 1.5 hours lab. (P/NP or SP)

Creation of levels for games and simulations: Level design, architecture theory, concepts of critical path and flow, balancing, play testing, and storytelling. 0614.40

MM/AN 550, Animation and Game Studio Practice

0 Units

4 hours lab. (P/NP or SP)

Animation and game studio practice: Individual instruction on the development of projects within the field of animation and game design.
0614.40