

ITT Technical Institute
GD360
Advanced Animation
Onsite Course

SYLLABUS

Credit hours: 4

Contact/Instructional hours: 50 (30 Theory Hours, 20 Lab Hours)

Prerequisite(s) and/or Corequisite(s):

Prerequisite: GD320 Physics of Animation

Course Description:

This course examines advanced animation techniques such as multiple key frame methods, character setup tools and two-limb animation solver. A discussion of scripting as it pertains to video game development is also included.

Where Does This Course Belong?

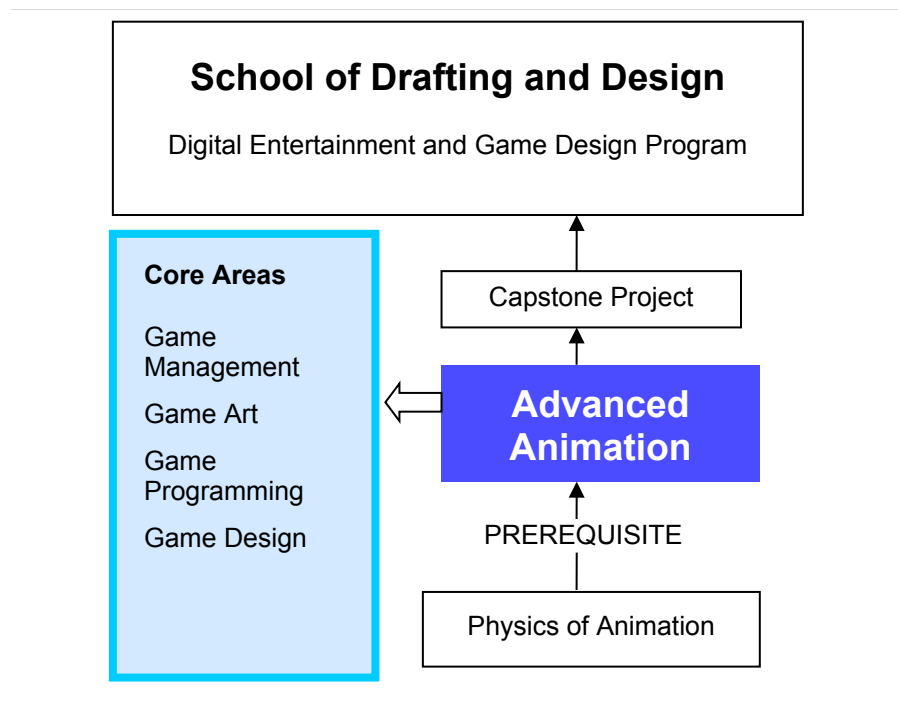
How does this course relate to the program? Take a look!

Advanced Animation is required to earn a Bachelor of Science degree in Digital Entertainment and Game Design program in ITT Tech's School of Drafting and Design.

The purpose of this program is to help graduates prepare for career opportunities in a variety of entry-level positions involving technology associated with designing and developing digital games and multimedia applications. Courses in this program offer a foundation in digital game design through the study of subjects such as gaming technology, game design process, animation, and level design.

Graduates of this program may pursue entry-level careers in a number of different digital entertainment and game design companies. Job functions may include working as part of a team to help design, develop, test, or produce video games, or create animations and 3D scenes for use in video games.

The following course sequence provides an overview of how Advanced Animation fits into the program.



Note: Refer to the catalog for the state-specific course information.

First Things First

Welcome! This courseware is designed to provide strategies and resources that will aid you in teaching this course.

The courseware components check list below provides a snapshot of this course. You may want to review the components of the courseware. A good way to track your review is by **checking** in the box next to each component as you review it. Reviewing the components will give you the bigger picture and better prepare you for what is coming up in the next few weeks. All the best!

Courseware Components Check List

Courseware Components	Reviewed
Syllabus	
Course Description	<input type="checkbox"/>
Major Instructional Areas	<input type="checkbox"/>
Course Objectives	<input type="checkbox"/>
SCANS Objectives	<input type="checkbox"/>
Course Outline	<input type="checkbox"/>
Instructional Methods	<input type="checkbox"/>
Instructional Materials and References	<input type="checkbox"/>
Course Evaluation and Grading	<input type="checkbox"/>
Instructor Guide	
Important Notes before You Start	<input type="checkbox"/>
Course Overview	<input type="checkbox"/>
Instructor Resources	<input type="checkbox"/>
Classroom and Lab Setup	<input type="checkbox"/>
Your Feedback	<input type="checkbox"/>
Unit 1	
Objectives	<input type="checkbox"/>
Content Covered	<input type="checkbox"/>
Key Concepts That Must Be Covered in Class	<input type="checkbox"/>
Teaching Tips for This Unit	<input type="checkbox"/>
Homework	<input type="checkbox"/>
Labs	<input type="checkbox"/>
Summary and Reminders	<input type="checkbox"/>
Unit 2	
Objectives	<input type="checkbox"/>
Readings	<input type="checkbox"/>
Key Concepts That Must Be Covered in Class	<input type="checkbox"/>
Teaching Tips for This Unit	<input type="checkbox"/>
In-Class Assessment	<input type="checkbox"/>
Labs	<input type="checkbox"/>
Summary and Reminders	<input type="checkbox"/>
Unit 3	

Courseware Components	Reviewed
Objectives	<input type="checkbox"/>
Readings	<input type="checkbox"/>
Key Concepts That Must Be Covered in Class	<input type="checkbox"/>
Teaching Tips for This Unit	<input type="checkbox"/>
Homework	<input type="checkbox"/>
Labs	<input type="checkbox"/>
Summary and Reminders	<input type="checkbox"/>
Unit 4	
Objectives	<input type="checkbox"/>
Readings	<input type="checkbox"/>
Key Concepts That Must Be Covered in Class	<input type="checkbox"/>
Teaching Tips for This Unit	<input type="checkbox"/>
In-Class Assessment	<input type="checkbox"/>
Labs	<input type="checkbox"/>
Summary and Reminders	<input type="checkbox"/>
Unit 5	
Objectives	<input type="checkbox"/>
Readings	<input type="checkbox"/>
Key Concepts That Must Be Covered in Class	<input type="checkbox"/>
Teaching Tips for This Unit	<input type="checkbox"/>
Homework	<input type="checkbox"/>
Labs	<input type="checkbox"/>
Summary and Reminders	<input type="checkbox"/>
Unit 6	
Objectives	<input type="checkbox"/>
Readings	<input type="checkbox"/>
Key Concepts That Must Be Covered in Class	<input type="checkbox"/>
Teaching Tips for This Unit	<input type="checkbox"/>
In-Class Assessment	<input type="checkbox"/>
Labs	<input type="checkbox"/>
Summary and Reminders	<input type="checkbox"/>
Unit 7	
Objectives	<input type="checkbox"/>
Readings	<input type="checkbox"/>
Key Concepts That Must Be Covered in Class	<input type="checkbox"/>
Teaching Tips for This Unit	<input type="checkbox"/>
Homework	<input type="checkbox"/>
Labs	<input type="checkbox"/>
Summary and Reminders	<input type="checkbox"/>
Unit 8	
Objectives	<input type="checkbox"/>
Readings	<input type="checkbox"/>
Key Concepts That Must Be Covered in Class	<input type="checkbox"/>
Teaching Tips for This Unit	<input type="checkbox"/>

Courseware Components	Reviewed
In-Class Assessment	☐
Labs	☐
Summary and Reminders	☐
Unit 9	
Objectives	☐
Readings	☐
Key Concepts That Must Be Covered in Class	☐
Teaching Tips for This Unit	☐
Homework	☐
Labs	☐
Summary and Reminders	☐
Unit 10	
Objectives	☐
Readings	☐
Key Concepts That Must Be Covered in Class	☐
Teaching Tips for This Unit	☐
Labs	☐
Summary and Reminders	☐
Unit 11	
Course Review	☐
Final Exam	☐
Appendix A: Test and Answer Key	
Quizzes	☐
Final Exam	☐
Appendix B: Project for This Course	
Project	☐
Appendix C: Lab Solutions	☐
Appendix D: Assignments Answer Key	☐
Appendix E	N/A
Appendix F	N/A

Syllabus: Advanced Animation

Instructor:	_____
Office hours:	_____
Class hours:	_____

Major Instructional Areas

1. Maya 2012 basics
2. Non Uniform Rational B-Spline (NURBS) modeling
3. Polygon modeling

4. UV mapping techniques
5. Shading and texturing
6. Lights and camera
7. Animation and rigging
8. Rendering
9. Particles and paint effects
10. Demo reel/portfolio project

Course Objectives

1. Demonstrate features of the Autodesk Maya 2012 interface and commonly used hotkeys.
2. Demonstrate the procedure to transform various components of an object using transform tools.
3. Create models using the NURBS modeling techniques.
4. Create models using the polygon modeling techniques.
5. Apply shaders, materials, and mapping to change an object's appearance and surface behaviors.
6. Use different UV mapping techniques in Maya.
7. Demonstrate the use of lights and camera in a scene.
8. Demonstrate the procedure to render a scene in Autodesk Maya 2012.
9. Demonstrate the ability to animate in Autodesk Maya 2012.
10. Describe rigging in Autodesk Maya 2012.
11. Work with particle systems.
12. Create paint effects in Autodesk Maya 2012.
13. Develop a complete rendered scene in Autodesk Maya 2012 for demo reel/portfolio.

SCANS Objectives

SCANS is an acronym for Secretary's Commission on Achieving Necessary Skills. The committee, created by the National Secretary of Labor in the early 1990s, created a list of skills and competencies that the committee feels are necessary for employees to function in a high-tech job market.

1. Interpret and creatively communicate written information in a 3D design, model, or rendering.
2. Successfully participate as a contributing member of a team.
3. Apply the specific technology of a software program to the communication of design ideas.
4. Demonstrate problem-solving skills by choosing an appropriate solution to a problem.
5. Evaluate methods of constructing models with the appropriate software.
6. Demonstrate creative thinking and imaginative use of computer software.

Course Outline

Note: All graded activities, except the Project, are listed below in the pattern of <Unit Number>.<Assignment Number>. For example, Labs: 3.1 refers to the first lab activity in Unit 3.

Unit	Activities
1—Autodesk Maya 2012 and Transformation Tools	<ul style="list-style-type: none"> ● Read from <i>Autodesk Maya 2012: A Comprehensive Guide</i>: <ul style="list-style-type: none"> ○ Chapter 1, “Exploring Maya Interface” ○ Chapter 2, “Transform Tools in Maya” ● Labs: 1.1 ● Assignments: 1.1
2—NURBS Modeling	<ul style="list-style-type: none"> ● Read from <i>Autodesk Maya 2012: A Comprehensive Guide</i>: <ul style="list-style-type: none"> ○ Chapter 3, “NURBS Curves and Surfaces” ○ Chapter 7, “Modeling” ● Labs: 2.1

Unit	Activities
	<ul style="list-style-type: none"> • Quizzes: 2.1
3—Polygon Modeling	<ul style="list-style-type: none"> • Read from <i>Autodesk Maya 2012: A Comprehensive Guide</i>: <ul style="list-style-type: none"> ○ Chapter 4, “Polygon Primitives” • Labs: 3.1 • Assignments: 3.1
4—Shading Techniques	<ul style="list-style-type: none"> • Read from <i>Autodesk Maya 2012: A Comprehensive Guide</i>: <ul style="list-style-type: none"> ○ Chapter 5, “Shading and Texturing” • Labs: 4.1 • Quizzes: 4.1
5—UV Mapping	<ul style="list-style-type: none"> • Read from <i>Autodesk Maya 2012: A Comprehensive Guide</i>: <ul style="list-style-type: none"> ○ Chapter 6, “UV Mapping” • Labs: 5.1 • Assignments: 5.1
6—Lighting and Rendering	<ul style="list-style-type: none"> • Read from <i>Autodesk Maya 2012: A Comprehensive Guide</i>: <ul style="list-style-type: none"> ○ Chapter 8, “Lighting” ○ Chapter 12, “Rendering” • Labs: 6.1 (Portfolio) • Quizzes: 6.1
7—Animation	<ul style="list-style-type: none"> • Read from <i>Autodesk Maya 2012: A Comprehensive Guide</i>: <ul style="list-style-type: none"> ○ Chapter 9, “Animation - I” • Labs: 7.1 • Assignments: 7.1
8—Rigging and Deformers	<ul style="list-style-type: none"> • Read from <i>Autodesk Maya 2012: A Comprehensive Guide</i>: <ul style="list-style-type: none"> ○ Chapter 10, “Animation - II” • Project (Portfolio) (Start) • Labs: 8.1 • Quizzes: 8.1
9—Particle System	<ul style="list-style-type: none"> • Read from <i>Autodesk Maya 2012: A Comprehensive Guide</i>: <ul style="list-style-type: none"> ○ Chapter 13, “Particle System” • Labs: 9.1 (Portfolio) • Assignments: 9.1
10—Paint Effects	<ul style="list-style-type: none"> • Read from <i>Autodesk Maya 2012: A Comprehensive Guide</i>: <ul style="list-style-type: none"> ○ Chapter 11, “Paint Effects” • Labs: 10.1
11—Course Overview and Final Exam	<ul style="list-style-type: none"> • Project (Submit) • Final Exam

Instructional Methods

The course is composed of both theory and laboratory components. Your progress will be regularly assessed. Your instructor should make available to you lesson plans, course materials, notes, and resources before the theory portion of the class.

The material being taught in Advanced Animation is fundamental to success in a career in game design. It is therefore imperative to come to each class session prepared by having read the assigned textbook chapters. You must complete all quizzes, homework assignments, and laboratory assignments to ensure

full comprehension of the subject matter. The final project requires you to prepare a demo reel/portfolio, which is a major element in securing work in the game design field. The project starts in Unit 8 and is due in Unit 11. You will use the lab portion from Unit 8 onward to complete your project work. A final exam will be given at the end of the course to assess your understanding of the content material.

Instructional Materials and References

Student Textbook Package

- Tickoo, S., Purdue University and CADCIM Technologies. (2012). *Autodesk Maya 2012: comprehensive guide*. Boston, MA: Pearson Custom.

References

Log on to the ITT Tech Virtual Library at <http://library.itt-tech.edu/> to access online books, journals, and other reference resources selected to support ITT Tech curricula.

Books

You may click “Books” or use the “Library Catalog” function on the home page to find the following books.

ITT Tech Virtual Library> Main Menu> Books> Books24x7

- Derakhshani, Dariush. *Introducing Autodesk Maya 2012*. Alameda, CA: Sybex, 2011.
- Lanier, Lee. *Advanced Maya Texturing and Lighting*. 2nd ed. Alameda, CA: Sybex, 2008.
- Pedersen, Roger E. *Game Design Foundations*. Plano, TX: Wordware Publishing, 2009.

Periodicals

You may click “Periodicals” from the Main Menu or use the “E-Journal Look-up” function on the home page to find the following periodicals.

ITT Tech Virtual Library> Main Menu> Periodicals> ProQuest>

- Animation and Motion Pictures
- Animation and Television Programs
- Computer Graphics and Software
- Computer Graphics World
- Game Developer
- Graphics and Design
- Multimedia and Applications

Other References

The following resources may be found **outside** of the ITT Tech Virtual Library.

- 3D Total

<http://www.3dtotal.com>

Galleries, tutorials, forums, and textures for CG artists

- Area
<http://area.autodesk.com/>
News, software trials, tutorials, discussions, blogs, showcases, job board from Autodesk
- Autodesk Education Community
<http://students.autodesk.com>
Licensed software for students and faculty from Autodesk
- Autodesk Students Facebook Page
https://www.facebook.com/autodeskcommunity?sk=app_180884248665675
Over 35 products available for free from Facebook
- Autodesk YouTube Channel
<http://www.youtube.com/user/autodesk>
Videos from Autodesk
- CGArena
<http://www.cgarena.com>
CG news, galleries, free models and textures, free monthly e-zine, tutorials, demo reels, and job boards for CG artists
- CG Channel
<http://www.cgchannel.com>
Daily news, tutorials, galleries, community forums, and forums for individual and corporate demo reels
- CG Society
<http://www.cgsociety.org>
Membership site for the CG Society, including member area, portfolios, workshops, CG competitions, discussion forums, and job board
- Digital Arts
<http://www.digitalartsonline.co.uk>
Comprehensive coverage of the art of graphic design, 3D, animation, video, effects, Web and interactive design, in print and online
- Online Tutorials
 - CGTutorials: <http://www.cgtutorials.com>
 - Pixel 2 Life: <http://www.pixel2life.com>
 - Tutorialsphere: <http://www.tutorialsphere.com>
 - TutsBuzz: <http://www.tutsbuzz.com>

All links to Web references are always subject to change without prior notice.

Course Evaluation and Grading

Evaluation Criteria Table

The final grades will be based on the following categories:

CATEGORY	PERCENT
Quizzes	15%
Assignments	10%
Labs	30%
Project	30%
Final Exam	15%
Total	100%

Note: Students are responsible for abiding by the Plagiarism Policy.

Grade Conversion Table

The final grades will be calculated from the percentages earned in the course, as follows:

A	90–100%	4.0
B+	85–89%	3.5
B	80–84%	3.0
C+	75–79%	2.5
C	70–74%	2.0
D+	65–69%	1.5
D	60–64%	1.0
F	<60%	0.0

(End of Syllabus)

