

**City University of Hong Kong  
Course Syllabus**

**offered by School of Creative Media  
with effect from Semester B 2017 / 18**

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**Part I Course Overview**

**Course Title:** 3D Contents Production in Maya

**Course Code:** SM3605

**Course Duration:** One Semester (13 weeks)

**Credit Units:** 3 units

**Level:** B3

**Proposed Area:**  
*(for GE courses only)*

Arts and Humanities  
 Study of Societies, Social and Business Organisations  
 Science and Technology

**Medium of Instruction:** English

**Medium of Assessment:** English

**Prerequisites:**  
*(Course Code and Title)* SM2714 Fundamentals of Animation / SM2713 2D Animation I - Basic  
(Waiver may be granted on a case-by-case basis to students who have undertaken  
fundamental of animation training or Equivalent)

**Precursors:**  
*(Course Code and Title)* Nil

**Equivalent Courses:**  
*(Course Code and Title)* Nil

**Exclusive Courses:**  
*(Course Code and Title)* Nil

## Part II Course Details

### 1. Abstract

(A 150-word description about the course)

3D computer generated contents and animation is one of the stimulating and important aspects of the digital content creation industry especially for the production of animated feature films, video, TV, digital visual effects, video games, motion graphic, 4D projection mapping, virtual & augmented reality and even 3D printing. This subject teaches both the “know-why” and the “know-how” of designing and choreographing animated contents using Maya 3D computer animation technology. Students will learn how to use appropriate techniques and principles to design for movement, gesture, weight, action, reaction, behaviour and characteristics important to 3D computer animated contents. This course provides a solid foundation for future studies in advanced level Maya training like character animation; digital lighting and texturing, advanced modelling and other time-based and interactive media such as digital composition, video games, and digital visual effects.

### 2. Course Intended Learning Outcomes (CILOs)

(CILOs state what the student is expected to be able to do at the end of the course according to a given standard of performance.)

No.	CILOs <sup>#</sup>	Weighting* (if applicable)	Discovery-enriched curriculum-related learning outcomes (please tick where appropriate)		
			A1	A2	A3
1.	Recognize the principles of animation, 3D computer animation concepts and the production process			●	
2.	Use the technical know-how for 3D computer animation production			●	●
3.	Synthesise and communicate ideas visually and aurally in the form of 3D computer animation		●	●	●
4.	Demonstrate problem-solving skill, resource management skills and project management skills		●	●	●
5.	Critically evaluate and appreciate the form and aesthetic of movement		●		
6. <sup>^</sup>	Self-exploration and self-reflection of the subject matter		●	●	
		100%			

\* If weighting is assigned to CILOs, they should add up to 100%.

<sup>#</sup> Please specify the alignment of CILOs to the Gateway Education Programme Intended Learning outcomes (PILOs) in Section A of Annex.

<sup>^</sup> Negotiated Learning Outcome (NLO) explicitly articulating the elements of Discovery-oriented learning.

A1: Attitude

Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

A2: Ability

Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to self-life problems.

A3: Accomplishments

Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

**3. Teaching and Learning Activities (TLAs)**  
(TLAs designed to facilitate students' achievement of the CILOs.)

TLA	Brief Description	CILO No.						Hours/week (if applicable)
		1	2	3	4	5	6	
- Case study - Demonstration - Practices - Discussion	Regular lecture, screening and discussion of 3D computer animation and the production process	●						
- Case study - Demonstration - Practices - Discussion	Regular workshop and practices of 3D computer animation and the production process		●					
- Case study - Presentation - Critique - Discussion	Individual 3D animation project pre-production, pre-visualization and production; Progress review, presentation, discussion, critique and consultation.			●				
- Case study - Presentation - Critique - Discussion	Individual 3D animation project execution and management				●			
- Case study - Critique - Discussion	Individual 3D animation practices, exercises and project execution; Progress review, presentation, discussion, critique and consultation.					●		
- Self-exploration - Self-reflection	Weekly self-exploration of 3D computer animation and final reflection report						●	

**4. Assessment Tasks/Activities (ATs)**  
(ATs are designed to assess how well the students achieve the CILOs.)

Assessment Tasks/Activities	CILO No.						Weighting*	Remarks
	1	2	3	4	5	6		
Continuous Assessment: _____%								
Assignment 1: Self-Exploration & Self-Reflection						●	20%	
Assignment 2: Pre-production & Pre-Visualization - Presentation and Critique			●	●			20%	Continuous Assessment
Assignment 3: Outcomes of Maya 3D Animation Workshop	●	●					25%	
Assignment 4: Individual Maya 3D Animation Production Project and Final Outcomes Presentation and Critique	●	●	●	●	●		35%	Continuous Assessment
Examination: <u>0%</u> (duration: _____, if applicable)								
* The weightings should add up to 100%.							100%	

## 5. Assessment Rubrics

(Grading of student achievements is based on student performance in assessment tasks/activities with the following rubrics.)

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B, B-)	Fair (C+, C, C-)	Marginal (D)	Failure (F)
<b>Assignment 1:</b> Self-Exploration & Self-Reflection	This assessment will be graded on rationality, clarity and fluency of argument and comment. The threshold of 'discovery' lies in a student's ability to negotiate a position that is informed, defensible, and standing on personal insight.	<ul style="list-style-type: none"> <li>Rich content, excellent ability to interpret and integrate various resources</li> <li>Rigorous organization, coherent structure, systematic composition</li> <li>Precision in argument, well defined and reasoned points of view grounded in insightful interpretation of existing literature</li> <li>Readiness to respond to peer opinion and other views initiated in class discussion</li> <li>Discussion shed light on new dimensions of the issue</li> </ul>	<ul style="list-style-type: none"> <li>Adequate content, sufficient ability to integrate various resources based on demand</li> <li>Reasonable organization with balanced structure and composition</li> <li>Clear elaboration of ideas that sticks to the point, with clearly differentiated issues, ability to interpret opinions independently</li> <li>Sufficient responses to peer comments to sustain a discussion</li> </ul>	<ul style="list-style-type: none"> <li>Adequate content, fair ability to integrate various resources based on demand</li> <li>Fair organization with adequate structure and composition</li> <li>Relevant points made to the subject matter in question</li> <li>Ability to respond to other statements and engage in class discussion</li> </ul>	<ul style="list-style-type: none"> <li>Weak content, limited use of resources</li> <li>Poor organization, structure and composition</li> <li>Relevant points to the subject matter, marginal ability to interpret opinions</li> <li>Ability to respond to other comments in simple terms</li> </ul>	<ul style="list-style-type: none"> <li>Inadequate content, no/ irrelevant use of resources</li> <li>No organization, structure or/and composition</li> <li>Irrelevant points to the subject matter, no ability to interpret opinions</li> <li>Fail to respond to other comments</li> </ul>
<b>Assignment 2:</b> Pre-production & Pre-Visualization - Presentation and	These assessments will be graded on: <ul style="list-style-type: none"> <li>Ability to understand and</li> </ul>	<ul style="list-style-type: none"> <li>Strong evidence of original thinking: good organization, capacity to</li> </ul>	<ul style="list-style-type: none"> <li>Evidence of grasp of subject, some evidence of critical capacity and analytic</li> </ul>	<ul style="list-style-type: none"> <li>Student who is profiting from the university experience; understanding of</li> </ul>	<ul style="list-style-type: none"> <li>Sufficient familiarity with the subject matter to enable the student to progress without repeating the</li> </ul>	<ul style="list-style-type: none"> <li>Little evidence of familiarity with the subject matter; weakness in critical and analytic skills;</li> </ul>

<p>Critique</p> <p><b>Assignment 3:</b> Outcomes of Maya 3D Animation Workshop</p> <p><b>Assignment 4:</b> Individual Maya 3D Animation Production Project and Final Outcomes Presentation and Critique</p>	<p>demonstrate a critical awareness of the concept, workflow, application, and tool set.</p> <ul style="list-style-type: none"> <li>• Learning by doing. Reflection of Tool Proficiency / Tool Manipulation / Application of Art and Aesthetic/ Technology / Technological Theory</li> <li>• Ability to plan, execute and evaluate a project. Reflection of Innovation / Originality / Imagination / Lateral Thinking / Production Management / Learning Attitude / Ethics / Presentation Skills</li> </ul>	<p>analyse and synthesize; superior grasp of subject matter; evidence of extensive knowledge base.</p> <ul style="list-style-type: none"> <li>• Furthering knowledge through analysis and interpretation of issues discussed using information from a range of source</li> <li>• Exhibited courage to leave comfort zones and test existing boundaries, conventions and rules for unknown possibilities</li> <li>• Project was highly original, involved significant logistical challenges and required frequent problem-solving and re-assessment of project methods and goals throughout the duration of the project; student demonstrated exceptional and frequent initiative and self-direction in identifying and</li> </ul>	<p>ability; reasonable understanding of issues; evidence of familiarity with literature.</p> <ul style="list-style-type: none"> <li>• Compare and contrasted information from various sources with own interpretation relating to issues discussed</li> <li>• Demonstrated openness to experiment with new approaches and challenge conventions (comfort zone).</li> <li>• Project was original, challenging and require consistent problem-solving and re-assessment of project methods and goals throughout the duration of the project; student demonstrated consistent initiative and self-direction in identifying and overcoming problems as they arose.</li> </ul>	<p>the subject; ability to develop solutions to simple problems in the material.</p> <ul style="list-style-type: none"> <li>• Some discussion of issue raised in class, drawing on few sources of information</li> <li>• Experimented with a number of different approaches, techniques &amp; materials to solve problems but did not go beyond conventions (comfort zone).</li> <li>• Project was challenging, require minor problem-solving and re-assessment of project methods and goals throughout the duration of the project; student demonstrated some initiative and self-direction in identifying and overcoming problems as they arose.</li> </ul>	<p>course.</p> <ul style="list-style-type: none"> <li>• Only little discussion of issues raised in class, drawing on few sources of information.</li> <li>• Some attempts to experiment, but the approaches, techniques &amp; materials used are limited and lacked diversity.</li> <li>• Project was simplistic and required little problem-solving; student demonstrate little initiative and self-direction in identifying and overcoming problems as they arose.</li> </ul>	<p>limited or irrelevant use of literature.</p> <ul style="list-style-type: none"> <li>• No or little discussion of issues raised in class</li> <li>• No or little evidence of attempted experiment</li> <li>• Project was simplistic and required no problem-solving; student failed to demonstrate initiative and self-direction in identifying and overcoming problems as they arose.</li> </ul>
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		overcoming problems as they arouse.				
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**Note: All A+/A/A- grade assignment should comply with the highest performance of Discovery-oriented learning.**

### Part III Other Information (more details can be provided separately in the teaching plan)

#### 1. Keyword Syllabus

(An indication of the key topics of the course.)

3D Computer Generated Contents, 3D Computer Animated Contents, 3D Animation, Principles of Animation, Maya, Time-based Media, Maya Key Concept, Creative Research, Visual Structure, 3D Animation Production Process, Animation Pre-production, Animation Pre-Visualization, Thumbnail Sketching, Storyboarding, Layouts, Staging, Bar Chart, Keyframe, In-between, Overlapping, Animatic, Story-reel, Work-reel, 3D Modelling, Geometry Types, Animation Curves, Constraints, Rigid Body Simulation, Particle Simulation, Shading Materials, Texturing, Surfacing, Lighting, Rendering, Composition, Apple QuickTime Movie, Photo JPEG, H.264, Programme Package.

#### 2. Reading List

##### 2.1 Compulsory Readings

(Compulsory readings can include books, book chapters, or journal/magazine articles. There are also collections of e-books, e-journals available from the CityU Library.)

1.	Palamar, Todd. (2015). <i>Introducing Autodesk Maya 2016</i> : Autodesk Official Press. Hoboken, NJ: Sybex
2.	Autodesk Maya Press. (2007). <i>The Art of Maya: An Introduction to 3D Computer (Edition 4)</i> . Autodesk Official Press. Hoboken, NJ: Sybex
3.	Williames, Richard. (1940). <i>The Animator's Survival Kit: A Manual of Methods, Principles, and Formulas for Classical, Computer, Games, Stop Motion, and Internet Animators</i> . London, United Kingdom: Faber and Faber Ltd.
4.	Whitaker, Harold and Halas John (2002). <i>Timing for Animation</i> . New Ed edition. St. Louis, USA: Focal Press, Inc.

##### 2.2 Additional Readings

(Additional references for students to learn to expand their knowledge about the subject.)

1.	Palamar, Todd. (2015). <i>Mastering Autodesk Maya 2016</i> : Autodesk Official Press. Hoboken, NJ: Sybex
2.	Johnston, Ollie and Thomas, Frank. (1995). <i>The Illusion of Life: Disney Animation</i> . (Rev Sub edition). CA, USA: Disney Editions
3.	White, Tony. (2006). <i>Animation from Pencils to Pixels: Classical Techniques for the Digital Animator</i> . St. Louis, USA: Focal Press, Inc.
4.	White, Tony. (2009). <i>How to Make Animated Films: Tony White's Complete Masterclass on the Traditional Principals of Animation</i> . St. Louis, USA: Focal Press, Inc.
5.	AREA by Autodesk   The Autodesk CG Community on the Web. Autodesk, Inc. (2015). Home: Product Communities: Autodesk Maya <a href="https://area.autodesk.com/products/view/maya">https://area.autodesk.com/products/view/maya</a> (Accessed October 21 2015)
6.	Creative Crash (2015). Home: Tutorials: Maya: All Tutorials <a href="http://www.creativecrash.com/maya/tutorials">http://www.creativecrash.com/maya/tutorials</a> (Accessed October 21 2015)
7.	Lauria, Larry. Larry's Toon Institute. (1999) <a href="http://www.awn.com/tooninstitute/lessonplan/lesson.htm#top">http://www.awn.com/tooninstitute/lessonplan/lesson.htm#top</a> (Accessed October 21 2015)
8.	ASIFA-Hollywood: The International Animated Film Society. (2015) <a href="http://www.asifa-hollywood.org/">http://www.asifa-hollywood.org/</a> (Accessed October 21 2015)
9.	Animation Magazine Inc. (2012) <a href="http://www.animationmagazine.net/">http://www.animationmagazine.net/</a> (Accessed October, 21 2015)
10.	Tokuma Memorial Cultural Foundation for Animation. (2001-2015) <a href="http://www.ghibli-museum.jp">http://www.ghibli-museum.jp</a> (Accessed October 21 2015)
11.	Lasseter, John. (1987). Tricks to Animating Characters with a Computer. <a href="http://www.siggraph.org/education/materials/HyperGraph/animation/character_animation/principles/lasseter_s94.htm">http://www.siggraph.org/education/materials/HyperGraph/animation/character_animation/principles/lasseter_s94.htm</a> (Accessed October 21 2015)
12.	Owen, G. Scott (2000). Computer Animation <a href="http://www.siggraph.org/education/materials/HyperGraph/animation/anim0.htm">http://www.siggraph.org/education/materials/HyperGraph/animation/anim0.htm</a> (Accessed October 21 2015)