City University of Hong Kong
Course Syllabus

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

Part I Course Overview

Course Title:	Computer Programming for Animators
Course Code:	SM3122
Course Duration:	One semester
Credit Units:	3
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)*	Nil
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)

This course aims to introduce the basic programming knowledge for computer graphics and computer animation. At the end of the course, students are able to understand the advantages of using programming to facilitate the needs of a production, and be able to develop their own toolsets. The course will focus on developing tools and plug-ins for a selected commercial animation software.

The second purpose of this course is introducing the required mathematics and physics knowledge which is heavily used in modern computer animation. The topics include a basic of physics properties of light and color, the simulation of air/fluid motion, and the physical simulation of locomotion of computer controlled characters.

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[#]	Weighting* (if applicable)	Discovery-enriched curriculum related learning outcomes (please tick where appropriate)		
			A1	*A2*	*A3*
1.	Apply the basic programming skills to any programming language tools	20%	✓	✓	✓
2.	Write program/scripts for a selected commercial animation software to create different animation effects, which is difficult to create without using programming.	25%	✓	✓	
3.	Develop unique toolsets to facilitate the production need of individual or team-works, in order to reduce the production cost.	25%	✓	✓	
4.^	Associate, combine and integrate knowledge from different disciplines (e.g. mathematics, sciences, literature etc.) into course assignments Integrate the knowledge of mathematics and physics into computer animation.	30%	✓	✓	✓
		100%			

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

[#] Please specify the alignment of CILOs to the Gateway Education Programme Intended Learning outcomes (PILOs) in Section A of Annex.

^ 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	
Programming workshops	workshops will be conducted to help students applying the fundamental principle and techniques of programming.	✓						1 hr/week
Lectures	the theory behind how to use programming to create different animation effects will be covered in lectures.		✓		✓			3hrs/week
Programming workshops	workshops will be conducted to help students to create their own animation effects through programming.		✓		✓			1 hr/week
Programming workshops (in group works)	workshops will be conducted to help students to create customized toolsets to facilitate the animation production process.			✓	✓			2hrs/week for 2 weeks

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: 100%								
Short assignments on programming: students are required to finish several short programming assignments, which may not be animation-related, but demonstrate their ability to handle basic programming techniques.	✓						20%	
Programming assignments on animation: students are required to finish several individual assignments, which demonstrate their ability to create different animation effects using programming.		✓		✓			40%	
Group project on customized tools: students are required to finish a group project, which demonstrate their ability to create customize tools to facilitate the animation production process.			✓	✓			40%	
Examination: 0% (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)
1. Programming Project/ Technical Project/ Portfolio	Students should demonstrate ability to utilize primary and secondary sources, execute creative ideas and projects. The threshold of 'discovery' lies in a student's proactively turning theory into praxis, to transform course material into self-owned authorship.	– Work has strong affective quality and the articulation of personal styles and signature – Excellent appreciation, exploration and/or application of the aesthetic and expressive qualities of the medium – Work raises questions and instill insights about the process of conception, creative strategization	– Strong appreciation, exploration and/or application of the aesthetic and expressive qualities of the medium – Ability to create project/ work that demonstrate the processes of thinking and creative exploration – Proper adjustment of plans and strategies in response to resources (time, space,	– Basic appreciation and/or application of the aesthetic and expressive qualities of the medium – Limited ability to create project/ work that demonstrate the processes of thinking and creative exploration – Adjustment of plans and strategies in response to resources (time, space, equipment, etc) available	– Marginal appreciation of the aesthetic and expressive qualities of the medium – Marginal ability to create project/ work that demonstrate the processes of thinking and creative exploration – Limited adjustment of plans and strategies in response to resources (time, space, equipment, etc) available	– No appreciation of the aesthetics and expressive qualities of the medium – Fail to create project/ work that demonstrate the processes of thinking and creative exploration – Minimal adjustment of plans and strategies in response to resources (time, space, equipment, etc) available

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B, B-)	Fair (C+, C, C-)	Marginal (D)	Failure (F)
		and production – Innovative exploration by combining knowledge from different disciplines (e.g. mathematics, psychology, physics, anthropology, etc.) to create an inter-disciplinary project – Efficient adjustment of plans and strategies in response to resources (time, space, equipment, etc) available with constructive adjustment	equipment, etc) available and constructive feedback/ suggestions			

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B, B-)	Fair (C+, C, C-)	Marginal (D)	Failure (F)
2. Class Participation	This assessment task reviews students' participation and performance in discussions, debates and peer critique during the tutorial sessions. The evidence of 'negotiation', the sign of discovery, lies in students' pre-class preparation and interpersonal sensitivity to his/her peer members.	– Active in-class participation, positive listening, strong ability to stimulate class discussion and comment on other points – In-depth pre-class preparation and familiarity with peer reports and other materials – Interpret others' views with an open mind and ready to negotiate – Readiness to share personal insight via analysis and synthesis with informed views	– Active in-class participation, positive listening, ability to initiate class discussion and comment on other points – Adequate pre-class preparation and familiarity with peer reports and other materials – Interpret opinions effectively	– Attentive in in-class participation, listening with comprehension, but only infrequently contributing – Adequate pre-class preparation but little familiarity with peer reports and other materials – Fair ability in interpreting opinions	– Unmotivated to participate in class discussion or comment on other people's views – Little pre-class preparation and familiarity with peer reports and other materials – Poor ability in interpreting opinions	– Unwilling to participate in class discussion and comment on other points, even when requested by the teacher – No pre-class preparation and familiarity with peer reports and other materials – Minimal ability in interpreting opinions

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B, B-)	Fair (C+, C, C-)	Marginal (D)	Failure (F)
		– Constructively critical, thus facilitating the discovery of new issues				

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.)

Computer programming and scripts, Maya MEL scripts, plug-ins development, customized toolsets

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.	*MEL Scripting for Maya Animation* Wilkins, Mark R. Morgan Kaufmann, 2005.

2.2 Additional Readings

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

1.	*The Illusion of Life: Disney Animation* Ollie Johnston, Frank Thomas 1995
2.	
3.	