

**City University of Hong Kong
Course Syllabus**

**offered by School of Creative Media
with effect from Semester B 2019 /20**

Part I Course Overview

Course Title:	Digital Visual Effects
Course Code:	SM4129
Course Duration:	One semester
Credit Units:	3
Level:	B4
Proposed Area: <i>(for GE courses only)</i>	<input type="checkbox"/> Arts and Humanities <input type="checkbox"/> Study of Societies, Social and Business Organisations <input type="checkbox"/> Science and Technology
Medium of Instruction:	English
Medium of Assessment:	English
Prerequisites: <i>(Course Code and Title)</i>	SM2231 3D Animation I – Basic or SM3605 3D Contents Production in Maya or SM3701 Digital Composition or SM4123 Procedural Animation
Precursors: <i>(Course Code and Title)</i>	Nil
Equivalent Courses: <i>(Course Code and Title)</i>	Nil
Exclusive Courses: <i>(Course Code and Title)</i>	Nil

Part II Course Details

1. Abstract

(A 150-word description about the course)

Digital visual effects is a cross-disciplinary creative practice that requires wide-ranging background knowledge from the arts, cinematography, computer generated imagery (CGI) and programming, etc. This course aims to provide the basic understandings of both the art and science of contemporary digital visual effects. Through a series of lectures and workshops, students will gain essential background knowledge plus hands-on experience of colour management practice, image compositing, digital assets handling, open-source technologies, and integration of computer generated imagery (CGI) with live action elements. At the end of the course, students will have acquired the experience and knowledge to produce quality digital visual effects work.

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.	Demonstrate understanding of the core concepts – colour management, image compositing, camera tracking, and integration of CGI elements with live action materials.			√	
2.	Demonstrate problem solving skills to resolve issues in a production.			√	
3.	Demonstrate capacity to evaluate the quality of a work and to offer constructive criticism.			√	
4.	Conduct self-directed research to discover innovative solutions.		√	√	√
5 [^]	Produce a creative work in a collaborative effort.		√	√	√
* If weighting is assigned to CILOs, they should add up to 100%.		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	
Lectures	<ul style="list-style-type: none"> - History of digital visual effects - Introduction to leading digital effects techniques and solutions - Key concepts - Detailed deconstruction of visual effects shots; - Screening of latest digital visual effects materials. 	√					
Critique Sessions	Critique sessions are held regularly to encourage open discussions and constructive criticism.	√		√			
Class Exercises and Assignments	<ul style="list-style-type: none"> - Introduction to industry standard post production environments; - Colour management and colour correction; - Matte creation for simple image compositing; - General 2D compositing; - Deep Image Compositing; - Rotoscoping; - Image trackers and Paint tools; - 3D camera match-moving tools; - 3D compositing; - Integration of CGI materials with shot footages. - Multi-layer/aov CGI elements - Creation and use of High Dynamic Range Images for CG Lighting 		√	√	√		
Group Project	Students take on different roles in a creative production team, to create a short video consisting of a number of visual effects shots.	√	√	√	√	√	

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		
Continuous Assessment: 100%							
In-class exercises and assignments	√	√		√		50%	
Class Participation		√				10%	
Group project and presentation	√	√	√	√	√	40%	
Examination: 0% (duration: _____, if applicable)							
<i>* The weightings should add up to 100%.</i>						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. Essay	This assessment will grade 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"> - Rich content, excellent ability to interpret and integrate various resources - Rigorous organization, coherent structure, systematic composition - Precision in argument, well defined and reasoned points of view grounded in insightful interpretation of existing literature - Readiness to respond to peer opinion and other views initiated in class discussion - Discussion shed light on new dimensions of the issue 	<ul style="list-style-type: none"> - Adequate content, sufficient ability to integrate various resources based on demand - Reasonable organization with balanced structure and composition - Clear elaboration of ideas that sticks to the point, with clearly differentiated issues, ability to interpret opinions independently - Sufficient responses to peer comments to sustain a discussion 	<ul style="list-style-type: none"> - Adequate content, fair ability to integrate various resources based on demand - Fair organization with adequate structure and composition - Relevant points made to the subject matter in question - Ability to respond to other statements and engage in class discussion 	<ul style="list-style-type: none"> - Weak content, limited use of resources - Poor organization, structure and composition - Relevant points to the subject matter, marginal ability to interpret opinions - Ability to respond to other comments in simple terms 	<ul style="list-style-type: none"> - Inadequate content, no/ irrelevant use of resources - No organization, structure or/and composition - Irrelevant points to the subject matter, no ability to interpret opinions - Fail to respond to other comments

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B, B-)	Fair (C+, C, C-)	Marginal (D)	Failure (F)
2. Digital Visual Effect Project	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.	<ul style="list-style-type: none"> - 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 and production - Innovative exploration by combining knowledge from different disciplines (e.g. mathematics, psychology, physics, anthropology, etc.) to create an inter-disciplinary project 	<ul style="list-style-type: none"> - 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, equipment, etc) available and constructive feedback/ suggestions 	<ul style="list-style-type: none"> - 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 	<ul style="list-style-type: none"> - 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 	<ul style="list-style-type: none"> - 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)
		<ul style="list-style-type: none"> - Efficient adjustment of plans and strategies in response to resources (time, space, equipment, etc) available with constructive adjustment 				
3. Presentation	This assessment will grade on content and fluency of presentation. Students should show their co-operation to conduct a well-organized presentation with their own argument and evidence from readings and notes. The threshold of 'discovery' lied in a student's self initiatives to conduct additional research and to personalize theories for her/his personal daily experience.	<ul style="list-style-type: none"> - Rich, informative content, excellent grasp of the material with in-depth and extensive knowledge of the subject matter - Rigorous organization, coherent structure, and systematic exposition with a strong sense of narrative - Superior presentation skills: distinct pronunciation, fluent expression and appropriate diction, exact 	<ul style="list-style-type: none"> - Adequate content with firm grasp of the material that informs the audience on a subject matter - Reasonable organization, balanced structure and composition - Good verbal communication: comprehensible pronunciation, fluent expression and diction, fair time-management 	<ul style="list-style-type: none"> - Adequate content with comprehensive grasp of the material demonstrating basic knowledge of the subject matter - Fair organization, weak structure and composition - Fair presentation skills: acceptable pronunciation, expression and diction, fair time-management 	<ul style="list-style-type: none"> - Weak content, loose grasp of the general ideas with some knowledge of the subject matter - Poor organization, structure and composition - Poor presentation skills: marginal pronunciation, expression and diction, poor time-management 	<ul style="list-style-type: none"> - Inadequate content, fail to identify the general ideas with knowledge of the subject matter - No organization, structure or/and composition - Poor presentation skills: marginal pronunciation, expression and diction, minimal time-management

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B, B-)	Fair (C+, C, C-)	Marginal (D)	Failure (F)
		time- management - Critical analysis with insightful comments opening up new issues, or suggesting the ability to theorize				

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.)

Post-production, film negative formats, video formats, twinning effects, motion control camera, miniature, colour correction, retiming, 2D compositing, blue screen, green screen, colour keying, luma keying, difference keying, matte creation, rotoscoping, wire removal, restoration, vector painting tool, image tracking, camera tracking, 3D compositing, match-moving, 2D particle system, Computer Generated Imagery, Deep Image, OpenEXR, ACES Colour Management, Alembic digital asset, Photogrammetry.

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.	The Art and Science of Digital Compositing, Second Edition: Techniques for Visual Effects, Animation and Motion Graphics (The Morgan Kaufmann Series in Computer Graphics) - Ron Brinkmann
2.	The VES Handbook of Visual Effects Society: Industry Standard VFX Practices and Procedures (Second Edition)
3.	Official online training materials for Nuke https://www.foundry.com/products/nuke/tutorials

2.2 Additional Readings

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

1.	Special Effects: The History and Technique - Richard Rickitt, Ray Harryhausen
2.	Compositing Visual Effects: Essentials for the Aspiring Artist – Steve Wright
2.	Industry-wide VFX reference platform https://vfxplatform.com/