City University of Hong Kong
Course Syllabus

offered by Department of Computer Science
with effect from Semester A 2018 /19

Part I   Course Overview

Course Title:	Media Computing
Course Code:	CS1103B
Course Duration:	One semester
Credit Units:	3 credits
Level:	B1
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)*	CS1103 Introduction to Media Computing
Exclusive Courses: *(Course Code and Title)*	SM1103A Introduction to Media Computing

Part II   Course Details

1.   Abstract
(A 150-word description about the course)

This course will teach fundamental concepts for programming media objects such as image, graphics and sound. Students will learn basic programming concepts including variables, loops, conditions, arrays, functions and recursion. With these concepts, students will explore advanced topics like human-computer interaction, geometric transformation and fractal programming. Data structures and simple object-oriented techniques may also be introduced.

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.	Understand procedural concepts and mathematics essential for media programming.		✓	✓	
2.	Apply programming concepts to handle image, graphics and sound.		✓	✓	✓
3.	Create computer animation through human-computer interaction, geometric transformation and fractal programming.		✓	✓	✓
4.	Solve problems independently by finding resources, breaking down problems into sub-problems, and debugging.			✓	✓
	If weighting is assigned to CILOs, they should add up to 100%.	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.

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.)

Teaching pattern:

Suggested lecture/tutorial/laboratory mix: 3 hrs. workshop

TLA	Brief Description	CILO No.				Hours/week (if applicable)
		1	2	3	4	
Lectures/Workshops	All CILOs will be introduced, explained, discussed and demonstrated through lectures. Online resources will also be given for out-of-classroom reading and learning.	✓	✓	✓	✓	
Workshop exercises	The exercises will give students hands-on experience on computer programming and exploring media computing technology. Students will be expected to actively contribute to class discussions, and complete programming exercises.		✓	✓	✓	

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		
Continuous Assessment: <u>60%</u>						
Quiz	✓	✓	✓		20%	
Assignments		✓	✓	✓	40%	
Examination^: <u>40%</u> (duration: 2 hours)						

The weightings should add up to 100%. | 100% |

^ For a student to pass the course, at least 30% of the maximum mark for the examination must be obtained.

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. Quiz	ABILITY to UNDERSTAND and APPLY fundamental programming concepts to the context of media computing	High	Significant	Moderate	Basic	Not even reaching marginal level
2. Assignment	ABILITY to APPLY learnt knowledge for creative media	High	Significant	Moderate	Basic	Note even reaching marginal level
	CAPACITY for knowledge and creativity in applying and implementing media computing technologies					

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.)

   Programming fundamentals: variable, condition, loop, array, function

   Interactivity: image, sound, graphics, text, mouse and keyboard events

   Math: vector, matrix, trigonometry, probability

   Geometry transformations: rotation, translation, scaling, push and pop

   Fractal: randomness, noise, recursion, random walk

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.)

   NIL

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

1.	Marijn Haverbeke (2014). *Eloquent JavaScript: A Modern Introduction to Programming*. No Starch Press, 2nd edition.
2.	Lauren McCarthy, Casey Reas, and Ben Fry. *Getting Started with p5.js*. Published October 2015, Maker Media. 246 pages. Paperback.
3.	Dan Saffer (2010). *Designing for Interaction: Creating Innovative Applications and Devices*. New Riders, 2nd edition.