Form 2B

City University of Hong Kong

Information on a Course
offered by School of Creative Media
with effect from Semester _A_ in 2010 / 2011

Part I

Course Title: Philosophy and History of Computation

Course Code: SM4142

Course Duration: One semester

No. of Credit Units: 3

Level: B4

Medium of Instruction: English

Prerequisites: *(Course Code and Title)* SM1205 Interactivity & SM1204 Fundamentals of Programming I

Precursors: *(Course Code and Title)* Nil

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

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

Part II

1. Course Aims:

This course aims to give art students a strong understanding of the concept of computation from a historical perspective, and its potential use as an artistic medium. The core ideas of this course pertain to the theory of formal languages, computation, and information. Students will be introduced to the work of Turing, Chomsky, Von Neumann, among others. The rise of cybernetics and its influence on artistic creation will play a key role. In particular, the cybernetics movement remains an important example of interdisciplinary research that extends the idea of computation into biology, anthropology, sociology, psychology, and other areas. Interdisciplinarity remains a core feature of this course. Finally, the course considers the idea of the "virtual" in both science and art. Recent work on Artificial Life and its cultural implications will be considered. This section will pay special attention to the specific aesthetic issues raised by VR art. Philosophical issues raised by the influence of computational ideas on linguistics and cognitive psychology will be

considered. Instructors may choose to focus on a specific topic, such as for instance natural language processing, text generation, artificial life techniques, etc. But the core focus of the course should be twofold: (a) to present the conceptual fundamentals of computation/information; (b) to motivate students to reflect on the main features of computation as an artistic medium.

2. Course Intended Learning Outcomes (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)

Upon successful completion of this course, students should be able to:

No.	CILOs	Weighing (if applicable)
1.	Describe in detail the meaning of computation, its historical development, and the philosophical debates that have developed around it, and create artworks that reflect this understanding.	
2.	Theorize the different paradigms of computation, especially in light of the existence of different kinds of programming languages, and to produce artworks that explore the possibilities of one (or more) programming language paradigms.	
3.	Describe theoretical work that applies computation across different disciplines, and produce artistic projects that demonstrate the creative possibilities of these ideas.	
4.	Theorize the main characteristics of computational art as a distinct paradigm.	

3. Teaching and Learning Activities (TLAs)

(designed to facilitate students' achievement of the CILOs)

Indicative of likely activities and tasks students will undertake to learn in this course. Final details will be provided to students in their first week of attendance in this course.

ILO No	TLAs	Hours/weeks (if applicable)
1, 2	Comparison and contrast of programming languages that illustrate different programming paradigms (eg., java and prolog).	
2, 3, 4,	Brainstorming sessions, discussions, and presentations where students reflect on the question of whether computation is an artistic medium.	
1,2,3	Lectures and in-class debates about the work of key figures in the development of computation	

2	In-class programming exercises that explore the possibilities and limitations of different formal languages.	

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

Indicative of likely activities and tasks students will undertake to learn in this course. Final details will be provided to students in their first week of attendance in this course.

ILO No	Type of assessment tasks/activities	Weighting (if applicable)	Remarks
1,2,3,4	Creation of an interactive artwork (in such areas as: generative or interactive literature, autonomous agents, etc.) with a programming language seldom used by artists.		
1, 2, 3, 4	Production of a detailed research report explaining the various steps/decisions/changes in the creation of the student's art work, and the influence of computational concepts on the process.		
1, 2, 3, 4	In-class presentation and critique of the student's ongoing work, with a strong emphasis on the programming techniques used to produce the work.		
1, 4	Essay or in-class presentation describing whether computation can be considered a medium of expression and why (or why not).		

5. Grading of Student Achievement: Refer to Grading o Courses in the Academic Regulations and to the Explanatory Notes.

100% coursework and in-class participation
Grading pattern: Standard (A+AA-…F)
Grading is based on performance in assessment tasks / activities.

Part III

Keyword Syllabus:

Information Theory; Formal Language; Computation; Imperative and Logical programming languages; Computational linguistics; Computational and networked Art; Artificial Intelligence and Artificial Life; Virtual Reality.

References:

Cavallaro, Alessio, Jonson, Annemarie, and Tofts, Darren, Prefiguring cyberculture: an intellectual history (Cambridge: MIT Press, 2002).

Paul M. Churchland. Matter and consciousness : a contemporary introduction to the philosophy of mind (Cambridge, Mass. : MIT Press,1988).

Clark, Andy and Toribio, Josefa. Machine intelligence : perspectives on the computational model (New York : Garland Pub., 1998).

Cummins, Robert and Cummins, Denise D. Minds, brains, and computers (Malden, Mass: Blackwell Publishers., 2000).

Dennett, Daniel C. and Hofstadter, Douglas, The mind's I : fantasies and reflections on self and soul (Middlesex : Penguin, 1981).

Feynman, Richard P. Lectures on Computation **(**Reading, Mass.: Addison-Wesley, 1996.**)**

Floridi, Luciano (ed). The Blackwell Guide to the Philosophy of Computing and Information (London: Blackwell, 2004).

Shieber, Stuart (ed.). The Turing Test: Verbal Behavior as the hallmark of intelligence (Cambridge, Mass: MIT Press, 2004).

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