

**Credit Unit System:
Information on Courses**

1. **Course Title** (*English*): Philosophy and History of Computation

2. **Course Code:** SM4142

3. **Course Aims & Objectives:**

This course is mainly designed to give art students a strong understanding of the basic assumptions in the theory of computation from a historical perspective. Students will be able to describe in detail what computation is and how it developed. They will also be able to reflect critically on the conceptual and social (political, economic, cultural) issues around the rise of computer science and its application in modern life. Students will also address these topics both critically and accurately in their own artworks; they should be able to produce work in a medium of their choice (video, interactive installation, game, etc.) that shows a solid and independent understanding of the topics mentioned in class.

First of all, the course begins with an elementary introduction to the concept of computation. Students will consider the contributions of Turing, its political aspects, and the rise of artificial intelligence. The famous “Turing test” for AI will be discussed in detail. Building on the work done in SM 3127 (Philosophy and Psychology of Cognition), students will also briefly consider the conceptual issues around “strong AI”. The work of John Von Neumann to the development of computer architecture will also be introduced. Secondly, students will consider the concept(s) of information. The rise of cybernetics and its influence on artistic creation will play a key role in this section of the course. Thirdly, 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. Optionally, the instructor may also choose to discuss the rise of modern logic(s), including Boolean logic, the propositional calculus, the predicate calculus, and the various many-valued logics.

4. **Units:** 3

5. **Level:** B

6. **Keyword Syllabus:**

Turing Machines; the Church-Turing thesis; computable and uncomputable numbers; artificial intelligence; computationist theories of mind; information; complexity; cybernetics; computer architecture; virtual reality; artificial life.

7. **Teaching pattern:**

Duration of course: 1 semester

Suggested lecture/tutorial/laboratory mix: 2 hours lecture + 1 hour tutorial.

8. **Assessment pattern:**

100% Coursework

Grading pattern: Standard (A+AA-...F)

9. **Pre-requisites:** *SM 3127 Philosophy and Psychology of Cognition*

10. **Pre-cursor:** *(please quote course code & title)*

11. **Equivalent Courses:** *(please quote course code & title)*

12. **Key References:**

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).

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).

Returned by:

Name: Dr. Hector Rodriguez

Department: School of Creative Media

Extension: _____

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