

Academic Org: Dept of Computer Sci & Engg – Subject: AI: Systems & Tech

Course: AIST2010 **Course ID:** 013213 **Eff Date:** 2024-07-01 **Crse Status:** Active **Apprv. Status:** Approved **[Course Rev]**
Introduction to Computer Music: From Analysis to Algorithmic Music 電腦音樂導論：從分析到算法作曲

This course aims to present an overview of computer music for students with basic programming abilities. The course starts with fundamental audio analysis and synthesis, and finally progress towards algorithmic music generation with machine learning. Hands-on exercises also cover software toolboxes for music information retrieval and programming.

本科為有基礎編程能力的學生而設，提供電腦音樂各方面的概覽。科目內容由聲音分析及合成開始，到最後以機器學習自動生成音樂。實際操作練習也涵蓋音樂資訊檢索軟件包，以及音樂編程等。

Grade Descriptor: A

EXCELLENT – exceptionally good performance and far exceeding expectation in all or most of the course learning outcomes; demonstration of superior understanding of the subject matter, the ability to analyze problems and apply extensive knowledge, and skillful use of concepts and materials to derive proper solutions.

有關等級說明的資料，請參閱英文版本。

B

GOOD – good performance in all course learning outcomes and exceeding expectation in some of them; demonstration of good understanding of the subject matter and the ability to use proper concepts and materials to solve most of the problems encountered.

有關等級說明的資料，請參閱英文版本。

C

FAIR – adequate performance and meeting expectation in all course learning outcomes; demonstration of adequate understanding of the subject matter and the ability to solve simple problems.

有關等級說明的資料，請參閱英文版本。

D

MARGINAL – performance barely meets the expectation in the essential course learning outcomes; demonstration of partial understanding of the subject matter and the ability to solve simple problems.

有關等級說明的資料，請參閱英文版本。

F

FAILURE – performance does not meet the expectation in the essential course learning outcomes; demonstration of serious deficiencies and the need to retake the course.

有關等級說明的資料，請參閱英文版本。

Equivalent Offering:

Units: 3 (Min) / 3 (Max) / 3 (Acad Progress)

Grading Basis: Graded

Repeat for Credit: N

Multiple Enroll: N

Course Attributes:

Topics:

COURSE OUTCOMES

Learning Outcomes:

At the end of the course of studies, students will have acquired the ability to

1. Understand how audio is stored and manipulated in digital format
2. Relate basic music related terms with programming concepts
3. Perform analysis and synthesis for sounds
4. Use a number of toolboxes and software for programming and music information retrieval

Course Syllabus:

This course aims to present an overview of computer music for students with basic programming abilities. The course starts with fundamental audio analysis and synthesis, and finally progress towards algorithmic music generation with machine learning.

Hands-on exercises also cover software toolboxes for music information retrieval and programming.

Assessment Type:	Essay test or exam	: 20%
	Lab reports	: 20%
	Project	: 40%
	Short answer test or exam	: 20%

Feedback for Evaluation:

1. Quiz and examinations
2. Course evaluation and questionnaire
3. Question-and-answer sessions during class
4. Student consultation during office hours or online

Required Readings:

1. The Computer Music Tutorial, by Curtis Roads
2. The Theory and Techniques of Electronic Music, by Miller Puckette
3. The CSound Book: Perspectives in Software Synthesis, Sound Design, Signal Processing, and Programming, by Richard Boulanger
4. The Audio Programming Book, by Richard Boulanger and Victor Lazzarini

Recommended Readings:

OFFERINGS

1. AIST2010 Acad Organization=CSD; Acad Career=UG

COMPONENTS

LAB : Size=50; Final Exam=N; Contact=1
LEC : Size=50; Final Exam=Y; Contact=3

ENROLMENT REQUIREMENTS

1. AIST2010

Enrollment Requirement Group:

Prerequisite: AIST1110 or CSCI1120 or CSCI1130 or CSCI1510 or CSCI1520 or CSCI1530 or CSCI1540 or CSCI1550 or ENGG1110 or ESTR1002 or ESTR1100 or ESTR1102.

New Enrollment Requirement(s):

Pre-requisite = Change from "CSCI1110 or CSCI1120 or CSCI1130 or CSCI1510 or CSCI1520 or CSCI1530 or CSCI1540

or ENGG1110 or ESTR1002 or ESTR1100 or ESTR1102" to
"AIST1110 or CSCI1120 or CSCI1130 or CSCI1510 or CSCI1520 or CSCI1530 or CSCI1540 or CSCI1550 or ENGG1110
or ESTR1002 or ESTR1100 or ESTR1102".

Additional Information

eLearning hrs for blended cls 0
VTL-Onsite face-to-face hrs 0
VTL-Online synch. hrs 0
VTL-Online asynch. hrs 0
No. of micro-modules 0
Research components (UG) 1% - 49%

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