City University of Hong Kong
Course Syllabus

offered by School of Creative Media
with effect from Semester A 2024/25

Part I   Course Overview

Course Title:	**Digital Sound and Computer Music**
Course Code:	**SM5317**
Course Duration:	**One semester**
Credit Units:	**3**
Level:	**P5**
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)*	**Nil**
Exclusive Courses: *(Course Code and Title)*	**Nil**

Part II   Course Details

1.   Abstract

This course aims to equip students with the knowledge and technical skills to produce musical/audio material using digital audio workstations and various music technology applications. On completion of this module students should be able to:
- create sound and music to support various genres within digital entertainment;
- reflect and enumerate their own creative work;
- reflect on how sequencing and sound editing technology can be used to arrange musical and sound ideas for various applications;
- reflect on computer-based audio recording and manipulation techniques;
- analyze the underlying electronic/computer technology for audio production

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.	Enumerate and describe the basic design and operation of an audio recording studio.		✓		
2.	Describe the function and importance of sound and music in moving images and various applications.			✓	
3.	Record acoustic sources and create unique sound design and effects using audio sampling technology.				✓
4.	Design and create an electronic soundtrack using synthesis.				✓
5.	Critically listen and perform different techniques to restore or enhance an audio track.		✓	✓	
6.	Apply mastering techniques and prepare final deliverable materials for broadcast.				✓
7.	Organize and operate a full audio studio project.		✓	✓	
8.	Conduct extra research on the subject in relation to one's own experience as a self-reflective process.				✓
		100%			

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 real-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. Learning and Teaching Activities (LTAs)
(LTAs designed to facilitate students' achievement of the CILOs.)

LTA	Brief Description	CILO No.								Hours/week (if applicable)
		1	2	3	4	5	6	7	8	
Tutorial	Audio Recording Studio Basics and Operation (Software and Hardware)	✓								
Tutorial/Assignment Tasks	Student Presentations, Basic Audio & Music Production		✓							
Assignment Task	Audio Recording and Acoustic Sound Design			✓						
Lecture/Tutorial/ Assignment	Electronic Sound Design using Synthesis				✓					
Lecture/Tutorial	Post Production Techniques and Audio Restoration					✓				
Lecture/Tutorial	Audio Mastering Exercises						✓			
Assignment	Case Studies: Final Projects							✓	✓	

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	6	7	8		
Continuous Assessment: 100%										
Tutorial exercises	✓								None	
1st Assignment		✓							15%	
2nd Assignment			✓	✓					15%	
Tutorial exercises and student centred learning activities					✓	✓	✓	✓	None	
Final Project	✓	✓	✓	✓	✓	✓	✓	✓	50%	
Participation and contribution to class discussion	✓	✓	✓	✓	✓	✓	✓	✓	20%	
Examination: 0% (duration: , if applicable)										
									100%	

5. Assessment Rubrics

(Grading of student achievements is based on student performance in assessment tasks/activities with the following rubrics.)

Applicable to students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B, B-)	Fair (C+, C, C-)	Marginal (D)	Failure (F)
1. Soundtrack Review and Critique	This assessment will grade on rationality, clarity and fluency of argument and comment.	– 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	– 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	– 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	– 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	– 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
2. Mini Project	Students should demonstrate ability to utilize primary and secondary sources, execute	– Work has strong affective quality and the articulation of personal styles and signature	– Strong appreciation, exploration and/or application of the aesthetic and	– Basic appreciation and/or application of the aesthetic and expressive qualities of the medium	– Marginal appreciation of the aesthetic and expressive qualities of the medium	– No appreciation of the aesthetics and expressive qualities of the medium

	creative ideas and projects.	− 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 − Efficient adjustment of plans and strategies in response to resources (time, space, equipment, etc) available with constructive adjustment	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	− 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	− 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	− 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
3. Final Project	Students should demonstrate ability to utilize primary and secondary sources, execute	− Work has strong affective quality and the articulation of personal styles and signature	− Strong appreciation, exploration and/or application of the aesthetic and	− Basic appreciation and/or application of the aesthetic and expressive qualities of the medium	− Marginal appreciation of the aesthetic and expressive qualities of the medium	− No appreciation of the aesthetics and expressive qualities of the medium

	creative ideas and projects.	– 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 – Efficient adjustment of plans and strategies in response to resources (time, space, equipment, etc) available with constructive adjustment	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	– 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	– 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	– 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
4. Participation and Contribution to Class Discussion	Students' participation and performance in discussions, debates and other class	– Active in-class participation, positive listening, strong ability to stimulate class	– Active in-class participation, positive listening, ability to initiate class discussion	– Attentive in in-class participation, listening with comprehension, but	– Unmotivated to participate in class discussion or comment on other people's views	– Unwilling to participate in class discussion and comment on other points, even when

activities and tutorials… Students have to show their pre-class preparation.	discussion and comment on other points – In-depth pre-class preparation and familiarity with peer reports and other materials – Interpret others' views with an open mind and ready to negotiate – Readiness to share personal insight via analysis and synthesis with informed views – Constructively critical, thus facilitating the discovery of new issues	and comment on other points – Adequate pre-class preparation and familiarity with peer reports and other materials – Interpret opinions effectively	only infrequently contributing – Adequate pre-class preparation but little familiarity with peer reports and other materials – Fair ability in interpreting opinions	– Little pre-class preparation and familiarity with peer reports and other materials – Poor ability in interpreting opinions	requested by the teacher – No pre-class preparation and familiarity with peer reports and other materials – Minimal ability in interpreting opinions

Applicable to students admitted from Semester A 2022/23 to Summer Term 2024

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B)	Marginal (B-, C+, C)	Failure (F)
1. Soundtrack Review and Critique	This assessment will grade on rationality, clarity and fluency of argument and comment.	− 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	− 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	− 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	− 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
2. Mini Project	Students should demonstrate ability to utilize primary and secondary sources, execute creative ideas and projects.	− 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,	− 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	− 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	− 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

		psychology, physics, anthropology, etc.) to create an inter-disciplinary project − Efficient adjustment of plans and strategies in response to resources (time, space, equipment, etc) available with constructive adjustment			
3. Final Project	Students should demonstrate ability to utilize primary and secondary sources, execute creative ideas and projects.	− 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 − Efficient adjustment of plans and strategies in response to resources (time, space, equipment, etc) available with constructive adjustment	− 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	− 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	− 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
4. Participation and Contribution to Class Discussion	Students' participation and performance in	− Active in-class participation, positive listening, strong ability to	− Active in-class participation, positive listening, ability to initiate	− Attentive in in-class participation, listening with comprehension, but	− Unmotivated to participate in class

discussions, debates and other class activities and tutorials… Students have to show their pre-class preparation.	stimulate class discussion and comment on other points – In-depth pre-class preparation and familiarity with peer reports and other materials – Interpret others' views with an open mind and ready to negotiate – Readiness to share personal insight via analysis and synthesis with informed views – Constructively critical, thus facilitating the discovery of new issues	class discussion and comment on other points – Adequate pre-class preparation and familiarity with peer reports and other materials – Interpret opinions effectively	only infrequently contributing – Adequate pre-class preparation but little familiarity with peer reports and other materials – Fair ability in interpreting opinions	discussion or comment on other people's views – Little pre-class preparation and familiarity with peer reports and other materials – Poor ability in interpreting opinions

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.)

      Principles of acoustics and digital audio, MIDI sequencing, audio sampling techniques, sound synthesis, audio recording, audio mastering, sound design, music composition using technology, surround sound production, sound for interactive applications.

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.	Chion, Michel. *Audio-Vision*, New York: Columbia University Press, 1994.
2.	Bartlett, B. and J. Bartlett (2007). Recording music on location : capturing the live performance. Burlington, Mass., Focal Press.
3.	Bartlett, B. and J. Bartlett (2009). Practical recording techniques : the step-by-step approach to professional audio recording. Amsterdam ; Boston, Elsevier/Focal Press.
4.	Rumsey, F. (1994). MIDI systems and control. Oxford ; Boston, Focal Press.
5.	Pohlmann, K. C. (2005). Principles of digital audio. New York, McGraw-Hill.
6.	Rumsey, F. and T. McCormick (2009). Sound and recording. Amsterdam ; London, Elsevier/Focal.
7.	Rumsey, F. and J. Watkinson (2004). Digital interface handbook. Amsterdam ; Boston, Elsevier/Focal Press,.
8.	Film Sound Reference http://www.FilmSound.org
9.	Music and Sound Production http://sweb.cityu.edu.hk/soundlib
10.	**Cinema Sound and EQ Curves** http://www.hometheaterhifi.com/volume_9_2/feature-article-curves-6-2002.html
11.	MIDI http://www.midi.org http://www.borg.com/%7Ejglatt/tech/midispec.htm
12.	**DPA Microphones** http://www.dpamicrophones.com
13.	**Holophone** (Surround Microphone) http://www.holophone.com

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