

SM5317: DIGITAL SOUND AND COMPUTER MUSIC

Effective Term

Semester A 2025/26

Part I Course Overview

Course Title

Digital Sound and Computer Music

Subject Code

SM - School of Creative Media

Course Number

5317

Academic Unit

School of Creative Media (SM)

College/School

School of Creative Media (SM)

Course Duration

One Semester

Credit Units

3

Level

P5, P6 - Postgraduate Degree

Medium of Instruction

English

Medium of Assessment

English

Prerequisites

Nil

Precursors

Nil

Equivalent Courses

Nil

Exclusive Courses

Nil

Part II Course Details

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 upon and explain their own creative work;
- summarise 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;
- summarise the underlying electronic/computer technology for audio production

Course Intended Learning Outcomes (CILOs)

CILOs		Weighting (if DEC-A1 app.)		DEC-A2	DEC-A3
1	Summarise the basic design and operation of an audio recording studio.		x		
2	Describe the function and importance of sound and music in moving images and various applications.			x	
3	Record acoustic sources and create unique sound design and effects using audio sampling technology.				x
4	Design and create an electronic soundtrack using synthesis.				x
5	Critically listen and perform different techniques to restore or enhance an audio track.		x	x	
6	Apply mastering techniques and prepare final deliverable materials for broadcast.				x
7	Organise and operate a full audio studio project.		x	x	
8	Conduct self-driven research on the subject in relation to one's own experience as a self-reflective process.				x

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.

Learning and Teaching Activities (LTAs)

LTAs		Brief Description	CILO No.	Hours/week (if applicable)
1	Tutorial	Audio Recording Studio Basics and Operation (Software and Hardware)	1	

2	Tutorial/Assignment Tasks	Student Presentations, Basic Audio & Music Production	2	
3	Assignment Task	Audio Recording and Acoustic Sound Design	3	
4	Lecture/ Tutorial/ Assignment	Electronic Sound Design using Synthesis	4	
5	Lecture/Tutorial	Post Production Techniques and Audio Restoration	5	
6	Lecture/Tutorial	Audio Mastering Exercises	7	
7	Assignment	Case Studies: Final Projects	7, 8	

Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks ("- for nil entry)	Allow Use of GenAI?
1	Tutorial exercises	1	0	-	Yes
2	1st Assignment	2	15	-	No
3	2nd Assignment	3, 4	15	-	Yes
4	Tutorial exercises and student centred learning activities	5, 6, 7, 8	0	-	Yes
5	Final Project	1, 2, 3, 4, 5, 6, 7, 8	50	-	Yes
6	Participation and contribution to class discussion	1, 2, 3, 4, 5, 6, 7, 8	20	-	No

Continuous Assessment (%)

100

Examination (%)

0

Minimum Continuous Assessment Passing Requirement (%)

0

Minimum Examination Passing Requirement (%)

0

Assessment Rubrics (AR)**Assessment Task**

Soundtrack Review and Critique (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

Criterion

This assessment will grade on rationality, clarity and fluency of argument and comment.

Excellent

(A+, A, A-) - 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

Good

- (B+, B, B-) - 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

Fair

- (C+, C, C-) - 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

Marginal

- (D) - 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

Failure

- (F) - 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

Assessment Task

Mini Project (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

Criterion

Students should demonstrate ability to utilize primary and secondary sources, execute creative ideas and projects.

Excellent

- (A+, A, A-) - 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

Good

- (B+, B, B-) - 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

Fair

- (C+, C, C-) - 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

(D) - 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

Failure

(F) - 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
-

Assessment Task

Final Project (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

Criterion

Students should demonstrate ability to utilize primary and secondary sources, execute creative ideas and projects.

Excellent

(A+, A, A-) - 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

Good

(B+, B, B-) - 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

Fair

(C+, C, C-) - 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

(D) - 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

Failure

(F) - 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
-

Assessment Task

Participation and Contribution to Class Discussion (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

Criterion

Students' participation and performance in discussions, debates and other class activities and tutorials... Students have to show their pre-class preparation.

Excellent

(A+, A, A-) - Active in-class participation, positive listening, strong ability to 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

Good

(B+, B, B-) - Active in-class participation, positive listening, ability to initiate class discussion and comment on other points

- Adequate pre-class preparation and familiarity with peer reports and other materials
- Interpret opinions effectively

Fair

(C+, C, C-) - Attentive in in-class participation, listening with comprehension, but only infrequently contributing

- Adequate pre-class preparation but little familiarity with peer reports and other materials
- Fair ability in interpreting opinions

Marginal

(D) - Unmotivated to participate in class 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

Failure

(F) - Unwilling to participate in class discussion and comment on other points, even when requested by the teacher

- No pre-class preparation and familiarity with peer reports and other materials
- Minimal ability in interpreting opinions

Assessment Task

Soundtrack Review and Critique (for students admitted from Semester A 2022/23 to Summer Term 2024)

Criterion

This assessment will grade on rationality, clarity and fluency of argument and comment.

Excellent

(A+, A, A-) - 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

Good

(B+, B) - 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

Marginal

(B-, C+, C) - 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

Failure

(F) - 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
-

Assessment Task

Mini Project (for students admitted from Semester A 2022/23 to Summer Term 2024)

Criterion

Students should demonstrate ability to utilize primary and secondary sources, execute creative ideas and projects.

Excellent

(A+, A, A-) - 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

Good

(B+, B) - 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

(B-, C+, C) - 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

Failure

(F) - 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
-

Assessment Task

Final Project (for students admitted from Semester A 2022/23 to Summer Term 2024)

Criterion

Students should demonstrate ability to utilize primary and secondary sources, execute creative ideas and projects.

Excellent

(A+, A, A-) - 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

Good

- (B+, B) - 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

- (B-, C+, C) - 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

Failure

- (F) - 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
-

Assessment Task

Participation and Contribution to Class Discussion (for students admitted from Semester A 2022/23 to Summer Term 2024)

Criterion

Students' participation and performance in discussions, debates and other class activities and tutorials... Students have to show their pre-class preparation.

Excellent

- (A+, A, A-) - Active in-class participation, positive listening, strong ability to 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

Good

- (B+, B) - Active in-class participation, positive listening, ability to initiate class discussion and comment on other points
- Adequate pre-class preparation and familiarity with peer reports and other materials
 - Interpret opinions effectively

Marginal

- (B-, C+, C) - Attentive in in-class participation, listening with comprehension, but only infrequently contributing
- Adequate pre-class preparation but little familiarity with peer reports and other materials
 - Fair ability in interpreting opinions

Failure

- (F) - Unmotivated to participate in class 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

Keyword Syllabus

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, real-time audio, digital signal processing, sound for interactive applications.

Reading List

Compulsory Readings

Title	
1	Roads, Curtis. Microsound. MIT Press 2004
2	Wishart, Trevor. On Sonic Art (1985). Harwood Academic Publishers GmbH
3	Chion, Michel. Audio-Vision New York: Columbia University Press, 1994.
4	Pohlmann, K. C. (2005). Principles of digital audio. New York, McGraw-Hill.
5	Rumsey, F. and T. McCormick (2009). Sound and recording. Amsterdam ; London, Elsevier/Focal.

Additional Readings

Title	
1	Holophone (Surround Microphone) http://www.holophone.com
2	DPA Microphones http://www.dpamicrophones.com
3	Rumsey, F. (1994). MIDI systems and control. Oxford ; Boston, Focal Press.
4	Rumsey, F. and J. Watkinson (2004). Digital interface handbook. Amsterdam ; Boston, Elsevier/Focal Press,.
5	Bartlett, B. and J. Bartlett (2007). Recording music on location : capturing the live performance. Burlington, Mass., Focal Press.
6	Bartlett, B. and J. Bartlett (2009). Practical recording techniques : the step-by-step approach to professional audio recording. Amsterdam ; Boston, Elsevier/Focal Press.
7	Film Sound Reference http://www.FilmSound.org
8	Music and Sound Production http://sweb.cityu.edu.hk/soundlib
9	Cinema Sound and EQ Curves http://www.hometheaterhifi.com/volume_9_2/feature-article-curves-6-2002.html
10	MIDI http://www.midi.org
11	MIDI http://www.borg.com/%7Ejglatt/tech/midispec.htm