

**City University of Hong Kong**

**Information on a Course  
offered by School of Creative Media  
with effect from Semester A in 2008 / 2009**

This form is for completion by the Course Co-ordinator. The information provided on this form will be deemed to be the official record of the details of the course. It has multipurpose use: for the University's database, and for publishing in various University publications including the Blackboard, and documents for students and others as necessary.

Please refer to the Explanatory Notes attached to this Form on the various items of information required.

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**Part I**

Course Title: Music Technology

Course Code: SM2242

Course Duration: One semester

No. of Credit Units: 3

Level: A2/B3

Medium of Instruction: English

Prerequisites: (Course Code and Title) SM1014 Sound Basics and Design

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 apply and extend the range of theoretical understanding and technical competencies achieved previously within SM1014 through creative project work and self discovery activities. Advanced theoretical and technical subjects concerned with audio recording studio techniques and music production will be covered, with special reference to their application in: live music performance; live sound production; concert recording; studio based production.

## 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.	Apply their understanding of how technology can be used to assist in music productions to create an original song	
2.	Enumerate and describe the set up of a stereo monitoring system and common stereophonic microphone techniques	
3.	Enumerate and describe the function and operation of all major components within an audio recording studio environment	
4.	Apply their understanding of the frequency radiation patterns of key Western acoustic instruments to produce high quality audio recordings	
5.	Enumerate audio recording and production techniques for live sound production	
6.	Enumerate a significant understanding of audio recording techniques and digital audio editing, mixing and mastering	
7.	Create and or produce live and studio based music productions	

## 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)
CILO 1	Understanding MIDI and its Applications to Music Production  Introduction to Music Production Tools (hardware/software) - generative applications - computer sequencers - virtual instruments - digital audio workstation - audio recording studios  Understanding Music Harmony Through Computer Sequencing and Arranging Tools - song writing basics - harmony basics - examples and discussion	3 weeks
CILO 2	Stereo Sound Production - Stereo Reproduction System - Auditory Perception - Stereo Microphone Techniques - Location Sound Recording for Music	1 week
CILO 3	Audio Recording Studio Operation - mixing - routing	2 weeks

	<ul style="list-style-type: none"> <li>- patching</li> </ul> <p>Audio Signal Processing</p> <ul style="list-style-type: none"> <li>- use of effects</li> <li>- use of equalisation</li> <li>- use of audio compression</li> </ul> <p>Capturing Impulse Responses</p> <p>Generating Natural Reverberation</p>	
CILO 4	Frequency Radiation Patterns of Acoustic Instruments	1 week
CILO 5	<p>Live Sound Production (amplified music performance)</p> <p>Acoustics</p> <ul style="list-style-type: none"> <li>- basic acoustics</li> <li>- microphone choice</li> <li>- microphone placement</li> </ul>	1 week
CILO 6	<p>Audio Recording Workshops</p> <ol style="list-style-type: none"> <li>1. Wei Hing Theatre Performance <ul style="list-style-type: none"> <li>- Grand Piano Recording</li> <li>- Strings Quartet Overdub Recording</li> </ul> </li> <li>2. Layering Sounds <ul style="list-style-type: none"> <li>- Concepts of Layering</li> <li>- Changing Position of Players</li> <li>- Simulate an Orchestra using Layering</li> </ul> </li> <li>3. Recording Acoustic Instruments <ul style="list-style-type: none"> <li>- Stereo Microphone Techniques Applied to Audio Recording Studio Projects</li> <li>- Spot Microphone Techniques</li> <li>- Recording Acoustic Guitar</li> </ul> </li> <li>4. Wei Hing Theatre Performance <ul style="list-style-type: none"> <li>- Jazz Band Performance Recording</li> </ul> </li> </ol>	4 weeks
CILO 7	Audio Master Techniques and Distribution Formats	1 week

#### 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
CILO 1	<p>1<sup>st</sup> Assignment</p> <p>Song Writing Using Technology</p> <p>Using a generative music composition/arrangement tool such as Garage Band and or Band In A Box, students are to create an original song, including lyrics and melody.</p>	10%	

	Tutorial exercises	None	
CILO 2	2 <sup>nd</sup> Assignment Audio Recording Project: Live Music Performance	10%	
	Tutorial exercises	None	
CILO 3	3 <sup>rd</sup> Assignment Audio Mixing, Editing and Processing	20%	
	Tutorial exercises and problem based learning tasks	None	
CILO 4	Tutorial exercises and student centred learning tasks	None	
CILO 5	Tutorial exercises and class exercises within 'Real-world' environments that are located outside of University grounds	None	
CILO 6	Tutorial exercises and student centred learning tasks	None	
CILO 1-7	Final Project	40%	
CILO 1-7	Participation and contribution to class discussion	20%	

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

80% coursework and 20% participation

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

Grading is based on performance in assessment tasks / activities.

### Part III

Keyword Syllabus:

- **Audio Recording Studio Fundamentals:** studio layout and organisation, signal paths and studio flow charts, set-up and shutdown procedures.
- **Audio Recording Techniques:** microphone types, microphone techniques, mixing desk techniques, stereo and multi-track recording techniques, mixing and production skills.
- **Audio Signal Processing:** reverberation, delay, compression.
- **Acoustics:** basic principles of acoustics as applied to room properties and design for live and amplified music. Basic designs of audio recording studios for music recording.
- **Live Sound Production:** design, installation and testing of public address systems, live sound mixing of amplified music, live sound recording of amplified music.
- **Music and Sound Production:** integration of acoustic music with MIDI based systems, midi sequencing, sampling and basic sound synthesis
- **Song Writing Production:** the role of the music producer within the audio recording studio. Techniques for creating music using technology.

Recommended Reading:

Text(s):

Bartlett, Bruce. Bartlett, Jenny. *Practical Recording Techniques, Fourth Edition : The step-by-step approach to professional audio recording*, USA: Focal Press, August 2005.

Katz, Bob. *Mastering Audio*, Burlington, MA: Focal Press, 2002.

Huber, David, Runstein, Robert E. *Modern Recording Techniques*, Woburn, MA: Focal Press, 2001.

Streicher, Ron and Everest, F. Altion. *The New Stereo Sound Book* (2<sup>nd</sup> Ed), USA: Audio Engineering Associates, 1998.

Online Resources:

Music and Sound Production  
<http://sweb.cityu.edu.hk/soundlib>

The Orchestra  
<http://library.thinkquest.org/22673/orchestra.html>

Acoustic Research  
<http://www.acoustics.net>

Home Studio Guide  
<http://www.tweakheadz.com/guide.htm>

MIDI  
<http://www.midi.org>  
<http://www.borg.com/%7Ejglatt/tech/midispec.htm>

MIDI over Lan  
<http://www.musiclab.com>

Sound Principles  
<http://www2.sfu.ca/sonic-studio/handbook/index.html>

DPA Microphones  
<http://www.dpamicrophones.com>

Holophone (Surround Microphone)  
<http://www.holophone.com>

*Returned by:*

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