

Full Title:	Sound Synthesis PR 2014
Module Code:	53026
Credits:	5
Valid From:	Semester 1 - 2014/15 (September 2014)
Module Delivered in	1 programme(s)
Module Description:	The aims of this module are to introduce the students to sound synthesis techniques and their implementation/realisation in open-source software synthesis systems as well as the creative application of these techniques in the design of original sound effects.
Learning Outcomes:	
<i>On successful completion of this module the learner should be able to</i>	
<ol style="list-style-type: none"> 1. Demonstrate a working knowledge of a range of classical synthesis techniques 2. Apply the fundamental theory behind sound synthesis techniques 3. Design and develop a software synthesizer for use in their own practical work. 	

Module Content & Assessment

Indicative Content

Review of digital representation of sound

Sampling rate, frequency response, bit-depth, dynamic response, advantages and limitations of digital audio systems and formats, file formats.

Sound Synthesis Concepts

Additive synthesis, subtractive synthesis, modulation techniques (AM, FM)

Creative applications of synthesis techniques

Free form, generative and algorithmic compositional approaches

Graphical User Interfaces

Implementation of interactive graphical environment to controlling sound synthesis modules.

Assessment Breakdown

%

Course Work

100.00%

Full Time

Course Work

Assessment Type	Assessment Description	Outcome addressed	% of total	Marks Out Of	Pass Marks	Assessment Date	Duration
Continuous Assessment	Including weekly practical assignments; investigation of sound synthesis techniques; and a major practical assignment.	None	25.00	0	0	Week 6	0
Continuous Assessment	Including weekly practical assignments; investigation of sound synthesis techniques; and a major practical assignment.	None	25.00	0	0	Week 11	0
Project	End-of-Semester Final Project	None	50.00	0	0	n/a	0

No Project

No Practical

No End of Module Formal Examination

Reassessment Requirement

A repeat examination

Reassessment of this module will consist of a repeat examination. It is possible that there will also be a requirement to be reassessed in a coursework element.

DKIT reserves the right to alter the nature and timings of assessment

Module Workload & Resources

Workload: Full Time

Workload Type	Workload Description	Hours	Frequency	Average Weekly Learner Workload
Practical	3-hour lab lecture: each three-hour session will include a brief lecture style presentation introducing important concepts and practical tasks for students to apply these concepts.	3.00	Every Week	3.00
Independent Study	Reviewing and implementing sound synthesis techniques	3.00	Every Week	3.00
Directed Reading	Sound synthesis concepts	2.00	Every Week	2.00
Total Weekly Learner Workload				8.00
Total Weekly Contact Hours				3.00

This course has no Part Time workload.

Resources

Recommended Book Resources

Boulanger, R. 2002, *The Csound Book*, MIT Press

Farnell, Andy 2011, *Designing Sound*, MIT Press

Russ, M. 2004, *Sound Synthesis & Sampling*, Focal Press

Alessandro Cipriani, Riccardo Bianchini 2008, *Virtual Sound - Sound Synthesis and Signal Processing - Theory and Practice with Csound*, Contemponet

Miranda, E 2002, *Computer Sound Design*, Focal Press

Kirk, R. & Hunt, A. 1999, *Digital Sound Processing for Music and Multimedia*, Focal Press

Puckette, Miller 2007, *The Theory and Technique of Electronic Music*, World Scientific Press

This module does not have any article/paper resources

Other Resources

CD-ROM: Russ, M. 1999, *Sound Synthesis & Sampling CD-ROM*, Focal Press

**Website: Puckette, Miller *The Theory and Technique of Electronic Music* [online]
<http://crca.ucsd.edu/~msp/techniques.htm>**

Website: Csound homepage <http://csounds.com/>

**Website: *Pure-Data Homepage*
<http://puredata.info/>**

Module Delivered in

Programme Code	Programme	Semester	Delivery
DK_MMPAR_8	Bachelor of Arts (Hons) in the Production of Music and Audio	7	Mandatory