Module specification

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Module Code	CMT705
Module Title	Digital Media Techniques (Sound)
Level	7
Credit value	30
Faculty	FAST
HECoS Code	100222
Cost Code	GACT

Programmes in which module to be offered

Programme title	Is the module core or option for this programme
MA Creative Media Production (Sound)	Core to the MA Creative Media Production (Sound) pathway only

Pre-requisites

N/A

Breakdown of module hours

Learning and teaching hours	24 hrs
Placement tutor support	0 hrs
Supervised learning e.g. practical classes, workshops	7 hrs
Project supervision (level 6 projects and dissertation modules only)	0 hrs
Total active learning and teaching hours	31 hrs
Placement / work based learning	0 hrs
Guided independent study	169hrs
Module duration (total hours)	300 hrs

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Initial approval date	25th July 2022
With effect from date	January 20223
Date and details of revision	

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Version number	1

Module aims

This Module explores advanced Digital Signal Processing and the creation and application of DSP sound processing tools to sound for Digital Media.

Students explore advanced visual programming activities using platforms for example such as JUCE, MaxMSP, PD and other C based platforms in order to develop digital signal processing strategies and solutions in relation to sound for media. Students will be given the opportunity to develop their own tools and apply them to realise creative outputs and/or demonstrate tools that can technically support creative outputs and processes for Media Sound production. Creative application of the DSP tools created could be applied to a broad range of Media production activities including Sound for Film, TV, Video games and interactive media installation.

The Module will provide students with the opportunity to learn advanced coding for DSP in relation to the production of sound for Media. This Module affords students the opportunity to develop advanced subject specific and transferable IT skills through Module activities based around coding for DSP activities

Module Learning Outcomes - at the end of this module, students will be able to:

1	Critically analyse approaches to Digital Signal Processing for sound that use computer programming techniques
2	Identify advanced specialist digital signal processing strategies that can support the realisation of digital media production output in the area of sound
3	Employ systematic and complex visual coding strategies to create
4	Explain specialist and advanced digital signal processing techniques and strategies in the context of specialist sound for digital media production

Assessment

Students will use advanced IT skills to create at least 3 digital signal processing tools that will support sound production for a digital media activity. The DSP tools could include standard Audio DSP Plugins, or DSP solutions for sound structuring and sequencing activities such as multichannel projects. Examples of Digital Media projects the tools might support include sound processing for an interactive project, sound processing for a fixed media production or sound processing for live media production. Students will be expected to submit the tools they have created as supporting materials to the module assessment process but will be assessed via an oral presentation.

Assessment number	Learning Outcomes to be met	Type of assessment	Weighting (%)
1	1, 2, 3, 4	Presentation	100

Derogations

None

Learning and Teaching Strategies

Through a series of online and face to face lectures and seminars, students will develop knowledge in the area of Digital Signal Processing and the application of such to the production of Sound for Media. Digital Signal Processing techniques will be taught through direct and guided engagement with IT coding platforms for sound and by exploring digital techniques for processes such as the harmonic, dynamic, pitch and time related manipulation of audio. The initial part of the lecture series will be co-taught with Music and Screen pathway students and will afford students the opportunity to learn something of each other' practice, and support future collaborative dialogue. The lecture series will be supported with additional practical support workshops and one to one supervision to support the development of student work. The module will support an ALF aligned student experience through the incorporation of a range of synchronous and asynchronous teaching and learning activities and associated materials.

Indicative Syllabus Outline

- Advanced sound production and processing strategies for Media Production
- Advanced Digital Signal Processing theory for Sound in the context of Media Production
- Using Programming environments to create DSP Tools e.g. MaxMSP, PD, JUCE
- Integrating and/or and utilising DSP Tools in conjunction with Media Production workflow professional software platforms such as Pro Tools (AAX) and Logic (AU).

Indicative Bibliography:

Please note the essential reads and other indicative reading are subject to annual review and update.

Essential Reads

Pirkle, W. (2019), *Designing Audio Effect Plugins in C++: For AAX, AU, and VST3 with DSP Theory*. 2nd Edition. Oxford: Routledge.

Other indicative reading

Boulanger, R.C. (2000), *The C Sound book: perspectives in software synthesis, sound design, signal processing, and programming.* Cambridge, MA, London: MIT Press.

Cipriani, A. and Giri, M. (2010), *Electronic music and sound design: theory and practice with Max/MSP / volume 1.* Rome: ConTempoNet.

Cook, Perry R., Salazar, S., Kapur, A., and Wang, G. (2015), *Programming for Musicians and Digital Artists : Creating Music with ChucK*. USA: Manning.

Greenberg, Ira.(2007), *Processing Creative Coding and Computational Art*. USA: Springer.

Lazzarini, V., and Boulanger, R. (2011), *The audio programming book*. USA: MIT Press.

Wilson, S,. Collins, N,. and Cottle, D. (2011), *The SuperCollider Book*. London: MIT.

Lyon, E. (2012), *Designing audio objects for Max/MSP and Pd*. Middleton, Wisconsin: A-R Editions.

Websites:

https://juce.com/learn/tutorials

https://theaudioprogrammer.com/blog/

http://www.martin-finke.de/blog/articles/audio-plugins-001-introduction/

Employability skills – the Glyndŵr Graduate

Each module and programme is designed to cover core Glyndŵr Graduate Attributes with the aim that each Graduate will leave Glyndŵr having achieved key employability skills as part of their study. The following attributes will be covered within this module either through the content or as part of the assessment. The programme is designed to cover all attributes and each module may cover different areas.

Core Attributes
Engaged
Creative

Key Attitudes
Commitment
Curiosity
Adaptability

Practical Skillsets
Digital Fluency
Organisation
Communication