STUDENT AND ACADEMIC SERVICES

UWE | University of the West of England
Bristol

MODULE SPECIFICATION

Part 1: Information			
Module Title	Audio Process Design and Implementation		
Module Code	UFCFE4-30-2	Level	Level 5
For implementation from	2018-19		
UWE Credit Rating	30	ECTS Credit Rating	15
Faculty	Faculty of Environment & Technology	Field	Computer Science and Creative Technologies
Department	FET Dept of Computer Sci & Creative Tech		
Contributes towards			
Module type:	Standard		
Pre-requisites	Audio Technology 2018-19, Introductory Audio Programming 2018-19		
Excluded Combinations	None		
Co- requisites	None		
Module Entry requirements	None		

Part 2: Description

Educational Aims: See Learning Outcomes

Outline Syllabus: Analysis of output characteristics of common musical instruments. Analysis of signal and structural characteristics of audio processes.

Design and implementation of modification and synthesis processes in detail, such as common studio effects, traditional and modern synthesis methods, and custom solutions to specific sonic requirements.

Relationships between written specifications, block diagrams, implementation techniques, and aural effects.

Object oriented design and implementation in the context of audio software.

Programming language syntax, libraries and tools. Data structures, algorithms, and architectures applied to audio processes.

Appropriate mathematical methods including functions for mapping and conversions, methods of processing discrete sampled values, lookup tables and generating signals.

Teaching and Learning Methods: Discussion sessions and self-paced learning materials will enable students to acquire knowledge of the theoretical and conceptual aspects of audio process design and implementation, and an understanding of the application of theory to practical problems. Supervised practical classes will be used to develop student understanding of the realisation of designs in software, the relationship between engineering forms and perceptual effects, and to acquire skills concerning software development and the use of the supporting software packages. As well as the practical sessions further efforts in finishing tasks, extending ideas, and development of knowledge will be required.

Support will also be provided via email and virtual learning environments.

The assignments will draw on the above approaches, but will require additional unsupervised learning to design, implement and debug audio processes in software which are more extended than those seen in the practicals. Efforts will typically increase from a low base at the start toward a maximum at the completion of assessment stages, rather than being evenly distributed.

Activity (hrs)
Contact time (72)
Assimilation and development of knowledge (148)
Exam preparation (20)
Coursework preparation (60)
Total study time (300)

Part 3: Assessment

The examination will be used to establish students' understanding of the theory and implementation of processes described in lectures and reading materials. To achieve marks beyond a threshold level, a wider appreciation of the design, implementation and uses of audio processes in context beyond the taught examples will be necessary.

The assignments will be used to establish students' understanding of practical design and implementation of software audio processes. This will involve demonstrating an ability to create two extended pieces of work beyond the examples seen in lectures and practicals. The assignments will be spaced in such a way as to maintain motivation through the module, and staged to allow progressive development of skills and understanding.

Formative assessment will be provided as part of the practical sessions. Group and individual feedback will be provided for the first and second assignments respectively. Cohort-wide feedback will be provided for the exam.

Marking of group components of assignment work will include an opportunity for students to indicate individual contributions.
Assessment criteria will be supplied with the assignment specification and in example exam papers.

First Sit Components	Final Assessment	Element weighting	Description
Project - Component B		20 %	Process design and software development assignment 1
Project - Component B		30 %	Process design and software development assignment 2
Examination - Component A	✓	50 %	Exam (180 mins)

Resit Components	Final Assessment	Element weighting	Description
Project - Component B		50 %	Process design and software development assignment
Examination - Component A	✓	50 %	Exam (180 mins)

Part 4: Teaching and Learning Methods	
Learning Outcomes	On successful completion of this module students will be able to:

	Module Learning Outcomes
MO1	Identify, describe, compare, select, modify, and combine audio modification, synthesis and control methods of all common types to construct theoretical solutions to problems using low-level elements, with regard to artistic and scientific requirements.
MO2	Convert between written specification, block diagram, and implementation forms of audio processes.
MO3	Identify and describe the perceptual, time and frequency domain effects of audio processes.
MO4	Select, combine, extend, implement and configure a specific subset of audio modification, synthesis and control methods in depth to achieve operational solutions to problems using low-level elements, with regard to artistic and scientific requirements.
MO5	Design, implement, test, debug and evaluate object oriented software in an audio context

Contact Hours

Contact Hours	
Independent Study Hours:	
Independent study/self-guided study	228
Total Independent Study Hours:	228
Scheduled Learning and Teaching Hours:	
Face-to-face learning	72
Total Scheduled Learning and Teaching Hours:	72
Hours to be allocated	300
Allocated Hours	300

Reading List	*The reading list for this module can be accessed via the following link:* https://uwe.rl.talis.com/modules/ufcfe4-30-2.html