BSc (Hons) Audio and Music Technology

Definitive Documentation – March 2007

Programme Specification

Section 1: Basic Data

Awarding institution/body	University of the West of England
Teaching institution	University of the West of England
Faculty responsible for programme	CEMS
Programme accredited by	n/a
Highest award title	BSc (Hons) Audio and Music Technology
Default award title	
Interim award title	BSc Audio and Music Technology Diploma of Higher Education in Audio and Music Technology Certificate of Higher Education in Audio and Music Technology
Modular Scheme title (if different)	
UCAS code (or other coding system if relevant)	J932
Relevant QAA subject benchmarking group(s)	Engineering
On-going/valid until* (*delete as appropriate/insert end date)	
Valid from (insert date if appropriate)	September 2007
Authorised by…	**Date:…**
Version Code 1	

Section 2: Educational aims of the programme

The programme in Audio and Music Technology has the following general aims:

- To prepare students for careers in organisations in which technology is applied to the creation or distribution of music or other performance or performing arts.

- To prepare students for careers in organisations with a research and development culture in music and audio technology.

- To develop problem-solving and other transferable skills that will be valuable to them in any career.

The programme in Audio and Music Technology has the following specific aims:

- To educate students in the use and application of technology in creative and performance arts – specifically audio and sound engineering.

- To link the design and engineering of music systems with appropriate understanding and theoretical underpinning, especially in the use of computer technology in a musical context.

- To develop the students' ability to make a contribution to companies engaged in the use, design and production of music or music systems, including film, theatre and the arts.

In addition to the general and specific aims stated above, the option modules have been selected to allow students to tailor their course to suit their specific interests and chosen career path.

Section 3: Learning outcomes of the programme

The award route provides opportunities for students to develop and demonstrate knowledge and understanding, intellectual skills, subject-specific skills and transferable skills as shown below

A. Knowledge and Understanding

Knowledge and Understanding of:	Teaching/Learning Methods and Strategies	Assessment
1. basic engineering applications and processes 2. applications of computers in music and audio systems 3. basic music theory 4. acoustics theory and application 5. application of music technology within multimedia and video systems 6. basic business and marketing practice	Throughout, the learner is encouraged to undertake independent reading both to supplement and consolidate what is being taught/learnt and to broaden their individual knowledge and understanding of the subject. Independent use of the recording studio is encouraged throughout the degree and is a requirement for UFEEJX-20-3. Independent learning through reading and use of appropriate software is encouraged both to supplement and consolidate what is being taught/learnt and to broaden the individual's knowledge and understanding of the subject. This is further emphasized in the project module, UFEE63-30. See Learning Outcomes x Modules grid pp 8,9.	The outcomes are assessed in core modules through a variety of methods. Where appropriate examinations are used, principally to test knowledge of theoretical concepts. Coursework is used extensively and offers the opportunity for students to demonstrate their understanding in a number of ways including the writing up of laboratory investigations and recording projects and more general essay-type activities.

B. Intellectual Skills

Intellectual Skills	Teaching/Learning Methods and Strategies	Assessment
Students will develop their skills in: 1. logical thinking and the use of symbolic language to describe the relationships between real or abstract quantities in the context of problems that arise in engineering. 2. problem solving in a musical/technical context. 3. the application of analysis and understanding of musical instruments, sound and recording. 4. the critical appreciation of the professional approach to music and recording work and the ability to control and produce a recording session to professional standards.	Intellectual skills are developed through tutorials that stimulate the student's critical, analytical and problem-solving abilities. During music studio sessions the students have the opportunity to rehearse their problem-solving and analytical skills by appraising a range of possible solutions to modern recording problems and determining the most appropriate technique for the creation of professional sound recordings. See Learning Outcomes x Modules grid pp 8,9.	Intellectual skills 1 and 2 are assessed mainly through coursework and examination throughout the award. Intellectual skills 3 and 4 are assessed by coursework and examination mainly within UFEE65-10-2 and UFEEJX-20-3 as well as UFEE6X-20-1. The project module, UFEE63-30-3, with its assessment based on a substantial report further enhances intellectual skills, particularly skill 2.

C . Subject, Professional and Practical Skills

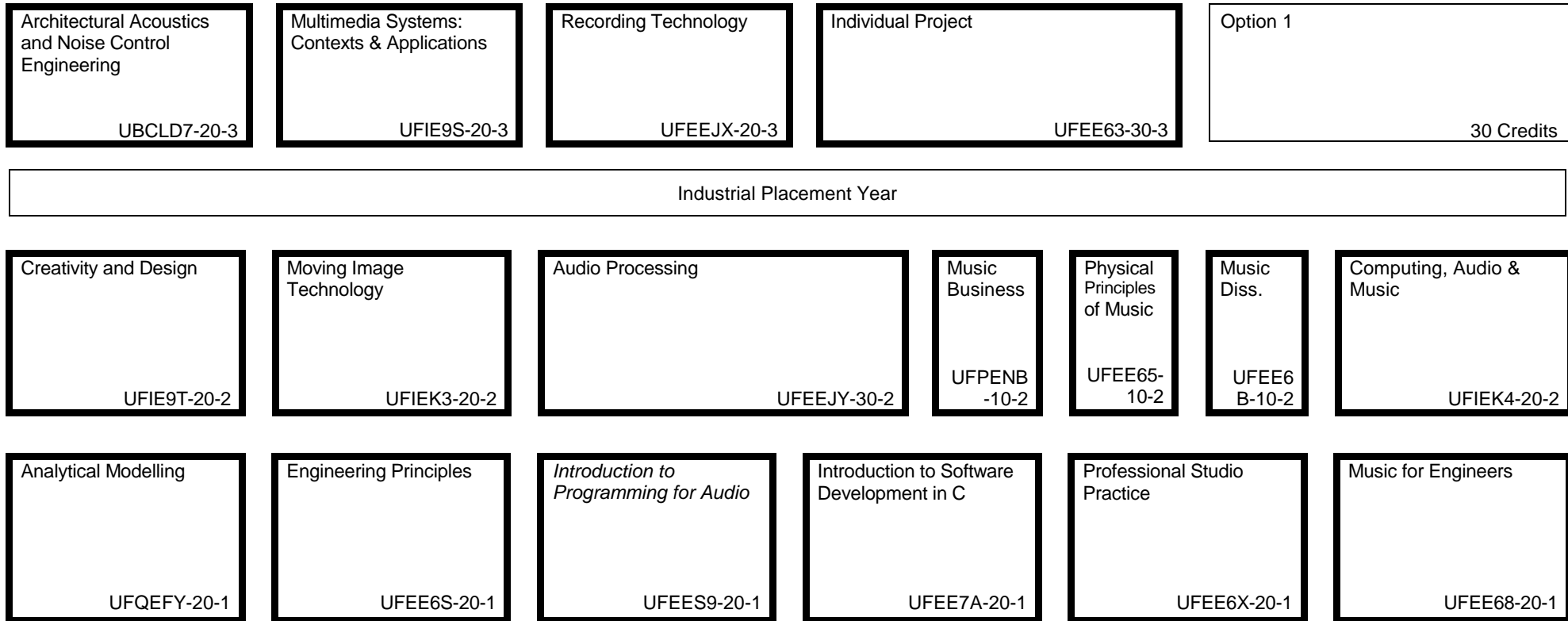| Subject/Professional and Practical Skills	Teaching/Learning Methods and Strategies	Assessment
Having successfully completed this programme, students will be able to: 1. use computers in music and audio as part of music creation and audio recording and processing 2. apply music technology and the recording studio to the process of creating music within professional environments 3. further develop their listening skills in music and recording	The ability to work with music systems in a professional practical manner and the understanding and application of mathematical techniques to problems associated with music systems are major outcomes of the award. Tutorials consolidate material introduced in the lecture environment, which together with computer laboratory practice using appropriate software, facilitate interpretation of theory to practical problems. Independent learning is encouraged through project based recording coursework. Thorough understanding of the physics of musical instruments is also learned through a practical and research based approach. See Learning Outcomes x Modules grid pp 8,9.	The possession of these skills is demonstrated by the development of practical laboratory work, coursework, presentations and examinations. The practical nature of the skills to be acquired means that some are specifically addressed by particular modules.

D. Transferable Skills

Transferable Skills	Teaching/Learning Methods and Strategies	Assessment
1. Communication skills: to communicate orally or in writing.	1. Skill one is developed through a variety of methods and strategies including the following: • Students maintain laboratory log books • Students participate in workshops and groupwork sessions. • Students participate in discussion tutorials • Students present research topic findings in tutorials • Students participate in individual tutorials	These skills are demonstrated in a variety of contexts including • examination • poster presentation. • individual and group projects • Practical assignments • Assignments that are presented in both written form and orally in class and vivas
2. Self-management skills: to manage one's own time; to meet deadlines; to work with others having gained insights into the problems of team-based systems development.	2. Skill two is developed through a variety of methods and strategies including the following: • Students conduct self-managed practical work • Students participate in practically-oriented tutorial laboratory sessions • Students work through practical work-sheets in teams • Students undertake group projects and individual projects which require peer participation.	
3. IT Skills in Context: to use software in the context of the creation of musical projects as well as in problem-solving investigations, and interpreting findings.	3. Skill three is developed widely throughout the programme especially in the recording studio and multimedia labs.	
4. Problem formulation: To express problems in appropriate notations.	4. Skill four is developed through a variety of methods and strategies including the following: • Students develop problem solving programs • Students practice design and programming	
5. Progression to independent learning: To gain experience of, and to develop skills in, learning independently of structured class work. For example, to develop the ability to use on-line facilities to further self-study.	5. Skill five is developed through a variety of methods and strategies including the following: • Students are encouraged to practice programming to extend their skills • Students develop problem-solving programs • Students are encouraged to research relevant topics • Students are encouraged to use online facilities to discover information	
6. Comprehension of professional literature: to read and to use literature sources appropriate to the discipline to support learning activities.	6. Skill six is developed through a variety of methods and strategies including the following: • Students are encouraged to access a range of material including both printed and online sources	
7. Working with others: to be able to work as a member of a team; to be aware of the benefits and problems which teamwork can bring.	7. Skill seven is developed through a variety of methods and strategies including the following: • Students undertake group projects as well as individual assignments which require peer participation See Learning Outcomes x Modules grid pp 8,9	

Programme LO against Modules: BSc Audio and Music Technology — Modules

Programme LO	UFQEFY-20-1 Analytical Modelling	UFEE6S-20-1 Engineering Principles	UFEEs9-20-1 Intro to Prog for Audio	UFEE7A-20-1 Software Development	UFEE6X-20-1 Prof Studio Practice	UFEE68-20-1 Music for Engineers	UFIE9T-20-2 Creativity and Design	UFIEK3-20-2 Moving Image Tech	UFEEJY-30-2 Audio Processing	UFPENB-10-2 Music Business	UFEE65-10-2 Physical Princs of Music	UFEE6B-10-2 Music Dissertation	UFIEK4-20-2 Computing, Audio & Music	UBCLD7-20-3 Architectural Acoustics	UFIE9S-20-3 Multimedia Systems	UFEEJX-20-3 Recording Technology	UFEE63-30-3 Individual Project
Knowledge and Understanding																	
1. basic engineering applications and processes	x	x	x	x	x						x			x		x	x
2. applications of computers in music and audio systems			x	x	x			x	x		x	x	x	x	x	x	x
3. basic music theory						x			x		x		x				
4. acoustics theory and application					x						x	x		x			x
5. application of music technology within multimedia and video systems					x		x	x					x		x	x	x
6. basic business and marketing practice					x					x					x		
Intellectual Skills																	
1. Logical thinking and the use of symbolic language to describe the relationships between real or abstract quantities in the context of problems that arise in engineering.	x	x	x	x					x		x	x	x	x	x	x	x
2. Problem solving in a musical/technical context.	x	x	x	x	x			x	x		x		x	x	x	x	x
3. The application of analysis and understanding of musical instruments, sound and recording.					x	x			x		x	x	x	x		x	x

4. The critical appreciation of the professional approach to music and recording work and the ability to control and produce a recording session to professional standards.					x	x					x		x		x	x	x
Subject/Professional/Practical Skills																	
1. use computers in music and audio as part of music creation, audio recording and processing			x	x	x			x	x		x		x		x	x	x
2. apply music technology and the recording studio to the process of creating music within professional environments					x				x			x	x		x	x	x
3. further develop listening skills in music and recording					x	x			x		x	x	x			x	
Transferable Skills																	
Communication Skills		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Self-management skills			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
IT skills in context			x	x	x		x	x	x	x		x	x		x	x	x
Problem formulation	x	x	x	x	x	x	x	x	x	x	x		x	x		x	x
Progression to independent learning		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Awareness of professional literature					x		x	x	x	x	x	x		x	x	x	x
Working with others			x		x	x	x	x		x			x	x	x	x	

Section 4: Programme structure

Proposed Award Structure for BSc (Hons) Audio and Music Technology (AMT) (2007)

Architectural Acoustics and Noise Control Engineering	Multimedia Systems: Contexts & Applications	Recording Technology	Individual Project	Option 1
UBCLD7-20-3	UFIE9S-20-3	UFEEJX-20-3	UFEE63-30-3	30 Credits

Industrial Placement Year

Creativity and Design	Moving Image Technology	Audio Processing	Music Business	Physical Principles of Music	Music Diss.	Computing, Audio & Music
UFIE9T-20-2	UFIEK3-20-2	UFEEJY-30-2	UFPENB-10-2	UFEE65-10-2	UFEE6B-10-2	UFIEK4-20-2

Analytical Modelling	Engineering Principles	*Introduction to Programming for Audio*	Introduction to Software Development in C	Professional Studio Practice	Music for Engineers
UFQEFY-20-1	UFEE6S-20-1	UFEES9-20-1	UFEE7A-20-1	UFEE6X-20-1	UFEE68-20-1

☐ Core modules   ☐ Option modules

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Option 1 taken from	*At least 10 credits must be at Level 3*
ILP	Institution Language Programme
UFEE69-20-2	Embedded Microprocessor Systems
UFMENA-20-1	Digital Design Skills
UFEE5V-10-3	Software Engineering Management
UFEE5X-20-3	Computer Networks
UFEEHL-10-3	Integrated Case Studies
UFPE6D-10-3	Project Management
UFCEKR-20-1	Media Technologies
UFQEFW-20-2	Discrete Mathematics

PLEASE NOTE: REFER TO THE FACULTY ON-LINE INFORMATION SYSTEM FOR UP-TO DATE STRUCTURE INFORMATION
http://www.cems.uwe.ac.uk/exist/index.xql

Section 5: Entry requirements

The university's minimum requirements for entry to a degree apply to this programme. In addition entrants are required to have:

(a) evidence of achievement in Mathematics at GCSE Grade C or equivalent
(b) an A level or equivalent in a scientific or technological subject.

Section 6: Assessment Regulations

The Modular Assessment Regulations apply to this programme.

Section 7: Student learning: distinctive features and support

Within the Faculty of Computing, Engineering and Mathematical Sciences, student learning will be supported in the following distinctive ways :
- Through provision of Open Access and other available computer laboratories that provide access to a range of relevant computer based applications
- Through provision of the CEMS System Support Helpdesk that provides a range of support for learning to students including :
  - support for a wide range of applications used by the students;
  - help in the form of Assistants who are trained to resolve many common student problems
  - and help in the form of a large set of 'help-sheet documents', developed over a number of years, that cover a variety of common student requests for information.
- Through specialist electronics, microprocessor development and autonomous robots laboratories.
- Through provision of the MuSE recording studio
- Technical support staff are available in laboratory sessions and during project work

Class Activities The mode of delivery of a module is determined by its Module Leader, and typically involves a combination of one or more lectures, tutorials, 'lectorials', laboratory classes, group activities and individual project work. Modules which require laboratory classes are commonly delivered by means of a combination of lecture and practicals or tutorials. Other modules are often delivered by means of 'lectorials', classes for groups of 20-30 students with no distinction between lectures and tutorials, and this has proved to be an effective mechanism for modules at level 1.

Academic Support   Academic advice and support is the responsibility of the staff delivering the module in question. Staff are expected to be available outside normal timetabled hours, either by appointment or during published "surgery" hours, in order to offer advice and guidance on matters relating to the material being taught and on its assessment.

Pastoral Care The Faculty offers pastoral care through its Student Advisers, a team of staff who provide comprehensive, full-time student support service on a drop-in basis or by appointment. All students on the same route are allocated to the same Adviser, who is trained to provide advice on matters commonly of concern, including regulatory and other matters; the Adviser will, when necessary, advise the student to seek advice to from other professional services including the university's Centre for Student Affairs or from members of academic staff.

Progression to Independent Study
Many modules require students to carry out independent study, such as research for projects and assignments, and a full range of facilities are available at all sites to help students with these. The philosophy is accordingly to offer students both guided support and opportunities for independent study. Guided support, mainly in the form of timetabled sessions, takes the form of lectures, tutorials, seminars and practical laboratory sessions. Students are expected to attend all sessions on their timetable.

The progression to independent study will also be assisted by the nature of the support offered in individual modules. Typically, module leaders will provide a plan for the module indicating the activities to be carried out and the forms of learning to be undertaken during the delivery of the module, with a view to encouraging students to plan ahead and to take responsibility for managing their time and resources.

Computing Facilities   The Faculty offers a specialised computing facility along side the general University provisions. There are nine general PC computing laboratories of 20 plus seats all running Windows2000, along with four Unix based laboratory and 10 specialist computing labs. The specialist

laboratories are equipped with the specific software for CEMS students; including Software Design Tools development environment, CAD, finite element analysis, mathematics and statistics packages to support the taught program. The specialist Computing laboratories are designed to target the discipline taught in that area. Amongst these, is the Computer Systems Architecture and Linux laboratory. The Unix labs offer the latest web development and programming tools.

One of the most popular areas within the Faculty is the Open Access laboratory. This area is never time-tabled and gives students the opportunity to access machines at all times during opening hours. This is a mixed environment consisting of PCs and Unix workstations.

Due to the extensive computing facility provided within the Faculty, and the specialist nature of this facility, user support is necessary. The Faculty provides a user support Helpdesk. The Helpdesk provides first line support to the user base, uniquely supported by both permanent staff and students that are in their second or final year of study (employed on a part time basis) until 20.00hrs every day. These general purpose and specialist laboratories are available to students up until midnight, seven days per week.

The Faculty is also well provided with Macintosh based systems. The students have the opportunity to make use of these especially in the music, audio and recording modules.

Practical (lab and studio) Activities The programme makes extensive use of the faculty's multimedia and recording facilities. One of the important underlying aims of the programme is to encourage students to work in a professional manner. All recording and audio laboratory work will be undertaken in a way that will encourage students to use and operate the equipment in a fully professional manner and to produce music and other product to a fully professional standard. Upon graduation their portfolio of work will clearly demonstrate this.

Section 8 Reference points/benchmarks

This programme has been prepared with reference to a number of external benchmarks, including the QAA Subject Benchmark Statement for Engineering, the Subject Benchmark for Computing, the QAA Framework for HE Qualifications, the university's Learning & Teaching Strategy, and a number of more specialised publications and sources as referenced below.

The Subject Benchmark Statement for Engineering outlines a set of skills expected of a graduate in an engineering discipline (Section 4 of the Statement refers), while noting that they should be interpreted in the context of the particular engineering discipline which is being studied. These skills map closely to the skills contained in the learning outcomes for this programme, and hence we have confidence that the programme is in accordance with the precepts of the Statement.

The Benchmark Statement for Computing also applies to this programme. The statement describes Computing as "concerned with the understanding ... and exploitation of ... computer technology" (p.1 para 1) and embraces a diversity of provision, particularly courses with a "strong engineering bias" (para 3.3). This programme, with its emphasis on the use of computer and other technologies to support well-engineered audio output, is therefore within the scope of the benchmark statement. The abilities and skills developed by the programme are consistent with those described in section 2.2 of the benchmark statement. Section 3 of the statement deals with curriculum design. This programme has been developed with reference to many of these course design principles. The principle that "the programme presents coherent underpinning theory appropriate to the aims of the course, and this is further developed and used throughout the course" is particularly pertinent.

The university's Learning & Teaching Strategy has informed the faculty's policy for the delivery of its programmes, whose main features are described in section 7."

This specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. More detailed information on the learning outcomes, content and teaching, learning and assessment methods of individual modules can be found in module specifications. These are available on the University Intranet.

Programme monitoring and review may lead to changes to approved programmes. There may be a time lag between approval of such changes/modifications and their incorporation into an authorised programme specification. Enquiries about any recent changes to the programme made since this specification was authorised should be made to the relevant Faculty Administrator.

Elements of the course involving music and music theory are referenced to the Associated Board of the Royal Schools of Music attainment levels. Critical awareness of musical performance and styles is fully referenced to the standards set by industry professionals from the BBC and other professional bodies.