

## MODULE SPECIFICATION

Please contact your College Learning and Teaching Team for guidance completing this form:  
 Colleges of Arts & Social Sciences and of Business & Law – [cass-tandlteam@salford.ac.uk](mailto:cass-tandlteam@salford.ac.uk)  
 College of Health and Social Care – [chsc-teaching@salford.ac.uk](mailto:chsc-teaching@salford.ac.uk)  
 College of Science and Technology – [cst-tl@salford.ac.uk](mailto:cst-tl@salford.ac.uk)

This form is available to download from [http://www.governance.salford.ac.uk/page/aqa\\_forms](http://www.governance.salford.ac.uk/page/aqa_forms)).

Date of completion of this version of Module Specification: 12/01/2016				
Date of approval by the USP: 26/01/2016				
1. Module Title: (Full title and short title no more than 30 characters) Psychoacoustics and Musical Acoustics			2.CRN: 35530	
3.University module code: H600 30068		4.HESA/JACS subject area code <sup>1</sup> : H600		
5.Level: Level 6	6.Credit Value: 20	7.ECTS Value <sup>ii</sup> : 10	8.Length of module in semesters: 2	9.Month(s) in which to be offered <sup>iii</sup> : September
10.Module Status <sup>iv</sup> Existing	11.Title of Module being replaced (if any):		12.With effect from <sup>v</sup> (academic year): September 2016	
13.Originating School: School of Computing, Science & Engineering		14.Module Leader(s) Professor T Cox		
15.Programme(s) in which to be offered <sup>vi</sup> : BEng (Hons) Audio Acoustics: Acoustic Engineering BEng (Hons) Audio Acoustics: Acoustic Engineering with Professional Experience BEng (Hons) Audio Acoustics: Audio Engineering BEng (Hons) Audio Acoustics: Audio Engineering with Professional Experience BSc (Hons) Physics BSc (Hons) Physics with Professional Experience BSc (Hons) Physics with Acoustics BSc (Hons) Physics with Acoustics with Professional Experience BSc (Hons) Pure & Applied Physics BSc (Hons) Pure & Applied Physics with Professional Experience MPhys (Hons) Physics MPhys (Hons) Physics with Professional Experience MPhys (Hons) Physics with Acoustics MPhys (Hons) Physics with Acoustics with Professional Experience				
16.Pre-requisites (between levels): None		17.Co-requisites (within a level): None		
18.Indicative learning hours (breakdown of hours required) <sup>vii</sup> 200				
Lecture	44	Fieldwork		
Seminar		External visits		
Tutorial		Work based learning		
Project supervision		Guided independent study		156
Demonstration Practical classes and workshops		Placement		
Supervised time in studio/workshop		Year abroad		

Other – please specify <sup>viii</sup>							
19. Percentage of module taught by School(s) other than originating School: 0%							
20. Aims of Module <sup>ix</sup> : (maximum of 5)							
<ol style="list-style-type: none"> <li>1. A systematic understanding of human perception of sound and its application in a musical context.</li> <li>2. Detailed analysis of hearing physiology, including appreciation of competing theories of aural transduction.</li> <li>3. A detailed understanding of musical sound generation, analysis and modelling techniques.</li> <li>4. A contextualisation of physical acoustics knowledge developed throughout the program, at the forefront of an area of particular student interest.</li> </ol>							
21. Intended Learning Outcomes <sup>x</sup>							
<u>Knowledge and Understanding (maximum of 5)<sup>xi</sup></u>							
On successful completion the student will be able to:							
<ol style="list-style-type: none"> <li>1. Analyse different musical instruments and formulate mathematical models to better understand / improve them.</li> <li>2. Apply a thorough knowledge of the hearing system to problems of perception, and have some appreciation of hearing pathology.</li> <li>3. Understand the relationship between human subjective perception and objective design criteria for engineering acoustics.</li> <li>4. Appreciate the range of academic sources in which current developments are reported.</li> </ol>							
<u>Transferable/Key Skills and other attributes (maximum of 5)</u>							
On completion the student will have had the opportunity to:							
<ol style="list-style-type: none"> <li>5. Application of Number: implementation of mathematical concepts inherent throughout module</li> <li>6. Information Technology: designing and implementing computer based applications</li> <li>7. Managing Learning: additional reading will be required</li> <li>8. Problem Solving: applying the techniques in examination</li> </ol>							
22. Module mark calculation: Method A							
23. Assessment components (in chronological order of submission/examination date)							
Denote final assessment component in box marked <b>final assessment component (99)</b>							
Type of assessment	Identify which ILO is met by number <sup>xii</sup>	Weighting %	Duration	Word count	Component pass required <sup>xiii</sup>	E Submission	Assessment organised by
Examination 1	1,2,3,4,5,6,7,8	50	2 hours		No	No	SID
					Choose an item.	Choose an item.	Choose an item.
<b>Final assessment component (99)</b> Examination 2	1,2,3,4,5,6,7,8	50	2 hours		No	No	SID
24. Is ethical approval for the module required?	No		25. Is ethical approval for an assessment component required? <sup>xiv</sup>		No		
26. Learning, teaching and assessment strategies:							
Lectures supported by integrated tutorials and practical demonstrations.							
27. Syllabus outline:							
<ul style="list-style-type: none"> <li>• Objective and subjective parameters of isolated musical sounds.</li> <li>• Hearing: structures and mechanisms, subjective perception of musical pitch.</li> </ul>							

- Hearing pathology.
- Beats, consonance and dissonance, intervals and scales.
- Timbre perception
- Loudness, power and masking.
- Emulative and non-emulative sound synthesis techniques
- Oscillating Systems - excitation, transient and forced response, resonance, linearity
- Strings - energetics, linearity, wave equation for string, modes of vibration, non-rigid boundary conditions, guitar luthiery
- Wind Instruments - energetics, wave equation for pipe, modes of vibration, brass instruments
- Two port analysis
- Percussion instruments
- Physical Modelling as a means of sound synthesis
- Musical psychology and neuroscience

28. Indicative texts and/or other learning materials/resources<sup>xv</sup>:

After initial approval, up to date reading lists can be accessed at <https://salford.rl.talis.com/index.html>

**Note:** This replaces the LaSU reading lists from September 2015 onwards.

For Office Use only:

Teaching and Learning  
Team Comments:

Module spec brought as part of Physics PPRR on 26 Jan 2016.

- i See UoS guidance notes on selecting JACS codes ([http://www.planning.salford.ac.uk/jacs\\_codes/](http://www.planning.salford.ac.uk/jacs_codes/)) see HESA JACS Codes webpage <http://www.hesa.ac.uk/index.php/content/view/356/233/>
- ii The ECTS value is half of the module credit value
- iii Please indicate the month (s) in which delivery of the module will commence.
- iv Amendments to the title or credit value constitute a new module.
- v If the delivery month of the module is to be available for different intakes of a programme, please indicate this here. E.g. Module effective from Sept 2014 – to state the module is to be available for Sept 2014 intake & Feb 2014 intake.
- vi The module will only be attached to programmes specified in this section. Any approved module can be available as a stand-alone module.
- vii These categories are used for the Key Information Set which currently applies only to full time undergraduate students only but please include for all students – for more information including definitions see [http://www.qaa.ac.uk/Publications/InformationAndGuidance/Documents/contact\\_hours.pdf](http://www.qaa.ac.uk/Publications/InformationAndGuidance/Documents/contact_hours.pdf) and [http://www.hesa.ac.uk/component/option.com\\_studrec/task.show\\_file/Itemid.233/mnl.13061/href.Calculations\\_methods.html/#LearningandTeaching](http://www.hesa.ac.uk/component/option.com_studrec/task.show_file/Itemid.233/mnl.13061/href.Calculations_methods.html/#LearningandTeaching)
- viii The 'other' category should not be used for learning undertaken by full undergraduate students as 'other' is not used in KIS categories
- ix The aims should express the purpose of the module.
- x The intended learning outcomes should detail the knowledge, understanding and skills that students will be able to demonstrate on successful completion.
- xi In some circumstances it may be necessary to have more than 5 intended learning outcomes. You will be asked to provide your rationale for this in discussion at the USP.
- xii For example, if the assessment is an essay and the essay meets ILOs number 1-4 and 6-7, state 1-4,6-7
- xiii If Method B is used for module mark calculation, indicate Yes to specify the assessment component(s) to be passed in order to pass the module
- xiv Please specify component(s) for which ethical approval is required.
- xv The "Indicative texts and/or learning materials/resources" box should include a maximum of five items for new modules. These should be formatted using the University's agreed referencing style for the subject area (usually APA Harvard System 6<sup>th</sup>). See [http://www.salford.ac.uk/library/infolit/tool#referencing\\_tab](http://www.salford.ac.uk/library/infolit/tool#referencing_tab) for more information. The texts should normally be recent texts (i.e. within the last six years) unless they are a particularly "classic" text. For existing modules, the "Indicative texts and/or learning materials/resources" box should include a link for USP reviewers and readers to the comprehensive reading list at <http://lasu.salford.ac.uk>