# PROGRAMME SPECIFICATION

<table>
<thead>
<tr>
<th>Awarding body/institution:</th>
<th>Queen Mary, University of London</th>
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<td>Teaching institution (if different from above):</td>
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<tr>
<td>Name of the final award and Programme title:</td>
<td>MSc Digital Music Processing (Option 1 Maths) (Option 2 Multimedia)</td>
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<td>Duration of Study/Period of Registration</td>
<td>One Year</td>
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<tr>
<td>UCAS code:</td>
<td>H6T7 Full Time H6I5 Distance Learning</td>
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<td>QAA Benchmark Group</td>
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<td>Academic Department/s involved in programme delivery</td>
<td>Electronic Engineering &amp; Computer Science</td>
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<td>If accredited by a professional/statutory body, please give the name, date of last accreditation visit, approximate date of next visit and details of exemptions that will be given to QMUL graduates.</td>
<td>N/A</td>
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Criteria for admission to the programme
The entry requirements are a first or upper-second class degree in Electronic Engineering, Computer Science, Mathematics or a related discipline. Applicants with unrelated degrees will be considered if there is evidence of significant relevant industrial experience. Applicants with lower-second class degrees may be considered if the undergraduate degree specialised in the relevant subjects.

For international students, English Language skills are required to a recognised standard. The minimum requirement is: IELTS 6.5, TOEFL (CBT) 242 or TOEFL (written test) 580. For students not quite meeting this requirement (e.g. IELTS 6.0), enrolling on a one month pre-sessional English Language course is required. These conditions are higher than standard College conditions.

**Aims of the programme**

The **overall aims** are to provide engineering students with training in advanced music and audio technologies, and in particular to give them the background and skills they need for careers in the technical aspects of audio production, audio engineering, and broadcasting.

**Specific aims** include the completion of a broad range of advanced study in methods of processing, analysis, synthesis and manipulation of musical signals. This involves the use of both established and specialised data analysis and signal processing techniques, an understanding of acoustics and basic music theory, and of standards, formats, broadcasting and transmission methods, and multimedia systems.

There are two tracks: Digital Music Processing with DSP or Digital Music Processing with Multimedia.

**Learning outcomes for the programme**

**Discipline-specific skills**

- An understanding of the fundamentals of digital signal processing and of the techniques needed for real time digital signal processing
- An ability to use modern digital techniques for the analysis of speech, music, video and image transmission and processing
- An appreciation of the techniques underlying the use and transmission of multimedia images, voice and data
- An understanding of the general signal processing techniques appropriate to the processing of musical signals such as automatic music transcription, computational auditory scene analysis, and music information retrieval.
- An understanding of automatic music transcription, computational auditory scene analysis, and music information retrieval.
- A demonstration of the use of taught knowledge via the successful completion
of a project in digital music processing or a cognate subject.

**Digital Music Processing with DSP:**
- Knowledge of the algorithms for pattern recognition in audio and symbolic representations of music.
- Knowledge of the relative merits of the various modern approaches to signal processing of audio and music.
- An understanding of the statistical properties of speech and music.
- The ability to implement statistical approaches to the modeling and filtering of musical signal analysis.
- A general and theoretical understanding of musical signal analysis using the full range of statistical, intelligent and/or real-time processing methods.

**Digital Music Processing with Multimedia:**
- An understanding of how audio is streamed, transmitted, or broadcast.
- An understanding of the role of audio and music in the context of a multimedia system.
- An understanding of how music processing fits into the greater scheme of multimedia processing.
- Knowledge of the standards bodies and standards used for audio and music.
- Knowledge of the copyright issues involved with music and its distribution.
- An understanding of the issues related to the use of audio in a video broadcasting system, including satellite, terrestrial, and cable broadcasting.

**Teaching, learning and assessment strategies**

Each non-project-based module involves lectures, problem solving coursework and practical sessions. Lectures are used to introduce principles and methods and also to illustrate how they can be applied in practice. Coursework allows students to develop their skills in problem solving and to gain practical experience. Practical sessions provide students with the guidance and help while solving a problem. These lessons take the form of exercise classes and programming laboratories that allow the students to learn-by-doing in order to complement the lectures.

The assessment of taught courses takes place through a written examination and coursework.

The project is examined on the basis of a written report, a formal oral presentation, and a demonstration of the piece of software developed by the student.

**Programme structure(s) and requirements, levels and modules**

**Digital Music Processing**

**Semester 1**
**ELEM020**: Fundamentals of DSP*
**ELEM018**: Advanced Transforms Methods
Two modules from the three below
**AMCM059**: Design for Human Interaction
**ELEM019**: Real-Time DSP
**ELEM032**: Digital Broadcasting*

**Semester 2**
**ELEM021**: Music & speech processing
**ELEM035**: Music Analysis and Synthesis
**ELEM036**: Digital Audio Effects*
**ELEM041**: Machine Learning* or **ELEM006**: Multimedia Systems

**May-September**
**ELEM010**: MSc Project

**Digital Music Processing with Multimedia**

**Semester 1**
**ELEM020**: Fundamentals of DSP*
**ELEM018**: Advanced Transforms Methods
**ELEM039**: Java Programming*
**ELEM032**: Digital Broadcasting

**Semester 2**
**ELEM021**: Music & speech processing
**ELEM035**: Music Analysis and Synthesis
**ELEM036**: Digital Audio Effects*
**ELEM006**: Multimedia Systems*

**May-September**
**ELEM010**: MSc Project

* Indicates modules to be taken in the First Year or Part time study (includes Distance Learning)

**Progression Criteria**

To obtain an MSc a student must gain passes in six of the eight taught modules taken and must pass the project. The pass mark is 50% for individual modules, but compensation is allowed for failure of up to two modules provided the mark in the module is not less than 30% and the candidate’s average over all the taught courses is not less than 50%.

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**Quality assurance mechanism** (please include details of: SSLC meetings, student feedback mechanisms, personal tutor arrangements, programme induction, programme review and monitoring.)
There are four SSLC meetings each academic year, two in each teaching semester. The meetings act as a forum for both students and staff to raise issues about the programmes, individual modules or facilities. Each semester students are invited to complete a web-based questionnaire and the results are fed back through the SSLC meetings. The results are also made available on the student intranet as are the minutes of the SSLC meetings.

Employers Links
Please provide details of any links with employers e.g.

- Details of advisory panels that include current or potential employers;
- Organisations that regularly employ graduates from this programme and the roles that graduates undertake.
- Student prizes donated by organisations that may offer employment to graduates from this programme.

If there are no links with employers consider the learning outcomes and transferable skills and explain how these might be used to inform employers about the qualities and skills a graduate from this programme might be expected to have.

The programme is scrutinised by a School Industrial Advisory Panel. The Panel meets annually to discuss research and teaching matters pertinent to our field.

| Person Completing Programme Specification | Mark Jenkinson |
| Person responsible for management of programme | Dr Tony Stockman |
| Date programme specification agreed by Department or teaching and learning committee | N/A |
| Date of approval by Faculty Board/SMD Education Board | N/A |
| Date of update/amendment | 07/09/2010 |