

# BSc in Music, Media & Performance Technology

The BSc in Music, Media & Performance Technology will develop the technical and creative skills required to be successful media practitioners in both the music and media industries. The programme involves both small group and individual tuition to help you to develop digital instrumental and media skills, as well as seminar, class and laboratory-based learning. The course emphasises the principles and application of digital media practice.

The aim of the programme is to equip you with degree level competence in music, media and performance technologies. On graduation, you will be capable of making a significant contribution to the continuing development and growth of the Digital Arts, the Music Technology and Media industries and more broadly across other sectors that use digital media technologies.

This programme will;

- Give you expertise in music and video digital media technologies
- Teach you the skills required for the creative use of music and video digital media
- Help you to acquire the expertise needed for you to take an active role in the diverse field of digital media
- Support you in your development of a critical and independent approach to problem solving that will help you to reach your full potential throughout your career
- Enhance your capacity to learn independently, by your own resources

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# B.Sc in Music, Media & Performance Technology

## Year 1 - Semester 2

Module	Description
CS4005 Perceptual Systems & Multimedia	This module aims at creating an awareness and understand how our senses work in order to perceive the world around us.
CS4082 Introduction to Web Development	This module will introduce students to the concepts and techniques underlying the World Wide Web, such that they will gain a working knowledge of how to structure and build websites. Students will be introduced to databases and SQL in order to create dynamic, data-driven web applications. Examples and project work will be relevant to each group of students in so far as possible.
CS4232 Music and Computers	This module familiarise students with digital audio workstations, the history of computer music and key ideas and techniques in computer music composition.
CS4072 Media Programming 2	This module is intended to familiarise media students with computer programming. Students will learn how to write their own programs to manipulate images, sound files, movies and text.
MA4702 Technological Mathematics 2	This module aims to develop the fundamental concepts and basic tools of calculus. To introduce applications of calculus in science and technology. To develop and integrate the basic mathematical skills relevant to technology.

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## Year 2 - Semester 1

Module	Description
CS4053 Digital Video Fundamentals	In this module students will learn the underlying processes involved in analogue and digital video equipment; demonstrate and use technology for capturing, storing, editing, distributing and reproducing digital video; and use digital video processing techniques including computer graphics and effects.
CS4025 Digital Audio Fundamentals	In this module students will develop the theoretical and practical knowledge needed to capture, manipulate, and deliver high quality digital audio. Topics covered include the analog to digital (ADC) and digital to analog (DAC) conversion process, digital signal processing, production techniques for visual media, and digital audio delivery protocols.
CS4083 Sound Synthesis	In this module students will develop knowledge and competence of digital media systems.
ET4003 Electro Technology	This module provides an introduction to electrotechnology for students studying in the area of enterprise engineering, materials and construction.
CS4019 Digital Arts 1	This module is an introduction to the wide range of art types and practices which make up the digital arts. It contextualizes the aesthetics and modes of approach of the digital arts by presenting the historical development of post 19th Century art practices and technologically mediated art forms. It evaluates these forms from a range of theoretical and practical vantage points thereby providing a perspective from which students can critically relate to the digital arts in general as well as to their own practice.

## Year 2 – Semester 2

Module	Description
CS4174 Performance Technology 1	In this module students will learn to organise and execute a successful artistic collaboration in video and audio; program real-time and distributed software for audio and video; implement real-time digital signal processing algorithms and environments; and produce work reflecting current practices in real-time video and audio production.
CS4826 Human Computer Interaction	The objective of this module is to develop an understanding of the issues involved in the increasingly important area of human-computer interaction. The module will provide a broad introduction to a variety of topics concerning user requirements, user interface design, usability studies, integrating human factors in software development, and social and organizational factors involved in implementing systems. It will examine guidelines and standards, as well as emerging interaction paradigms. The widespread adoption of graphical user interfaces (GUIs), and the potential afforded by new developments such as groupware, multimedia, hypertext, and virtual reality systems all require that even greater attention be paid to how these technical developments can be packaged and presented suitably to the "user".
CS4056 Mobile Application Design	This module focuses on the design of mobile applications. It focuses on the challenges associated with designing applications for mobile devices and teaches the student to overcome these challenges, taking into consideration each design dimension and relevant standards. The student will create visual assets for mobile applications using a variety of software products. The student will create mobile applications that manipulate a variety of digital media formats, make use of databases, read and respond to sensors and communicate with web via API.
CS4009 Directed Studies	Students will be introduced to the skills required to perform a literature review in a specific area and to critically appreciate media representative of this area. Research topics include developments in technology, media forms, music and video, architecture, image and graphics, and networks of communication.
CS4029 Advanced Audio Production	This module aims to give the student an in-depth understanding of the techniques for recording, processing and dissemination of audio; To give the student an understanding of audio processing on both the temporal, spatial and spectral domain.

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## Year 3 - Semester 1

Module	Description
Co-Op	An integral part of the course is the Cooperative Education period, during which the student will spend eight months (i.e. includes the Summer of Year 2) working in a course-related job in a business or industrial environment outside the University. The applied nature of this work placement complements the academic dimension of the course.

## Year 3 – Semester 2

Module	Description
CS4457 Project Management and Practice	Students will examine the processes by which the development of computer-based information systems are managed, and the considerations needed for successful implementation of such systems.
CS4040 Advanced Video Production	To give students a theoretical grounding in digital media formats, to explore the fusion of the sonic with the visual and to combine skills in video, graphics and animation toward creating higher-quality video content.
CS4066 Algorithmic and Generative Composition	Students will undertake a series of laboratory projects creating music composition systems. To develop knowledge and competence of digital media systems.
CS4030 Digital Arts 2	This module builds upon the curriculum of a range of modules especially Digital Arts 1. It deepens the engagement with this field by introducing the perceptual and aesthetic ramifications of the digital arts and situates the wide range of practices within cultural, psychological, political and economic models. It provides a foundation enabling students to situate, develop and specialise their digital arts practice as well as a context to which digital arts research can be related.
<b>Electives (Choose 1)</b>	
CS4358 Interactive Multimedia	To understand the principles and techniques of Interactive Media. Content creation, processing and management. High-level authoring. Distribution methods. Intellectual Property Rights.
CS4187 Professional Issues in Computing	Information and Communication Technology (ICT) industries employ large numbers of people who create technologies affecting a wide range of different types of communities within society as a whole. It is very important that students who will be entering these industries do so with an understanding of ethical professional and cultural issues that they will need to engage with as professionals. To this end Professional Issues in Computing focuses on the ethical, legal and social consequences of the design, implementation and use of computer and information systems.

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## Year 4 - Semester 1

Module	Description
CS4059 Creative Coding	To introduce students to the design and development of interactive audio-visual artworks using low level coding.
CS4107 Performance Technology 2	Students will develop their knowledge of performance technology in the context of interactive environments for digital media through a combination of laboratory based small group project work and lecture based learning.
CS4267 Music & Media Project 1	This module gives the students an opportunity to undertake a substantial project that integrates and uses techniques, and analytic and creative approaches learned within the course, while focusing on a particular domain of interest at a deeper level.

## Year 4 – Semester 2

Module	Description
CS4047 Multimedia Industry Perspectives	To understand the principles and techniques of Interactive Media. Content creation, processing and management. High-level authoring. Distribution methods. Intellectual Property Rights.
CS4049 Visual Coding	To introduce students to the principles behind algorithmic visuals and the practice of creating visuals through programmed, procedural approaches
CS4268 Music & Media Project 2	This module gives the students an opportunity to undertake a substantial project that integrates and uses techniques, and analytic and creative approaches learned within the course, while focusing on a particular domain of interest at a deeper level.