B.Sc. in Digital Media Design

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Think about an average day: checking messages on your mobile phone; buying a game on line; using wireless connection to update your social networking profile. People's lives are continuously shaped by interaction with a variety of media. Interactive digital media have increasingly become a support to work, study, travel, entertainment and other daily activities. The knowledge, skills and sensitivity to design interactive media technologies are key skills in contemporary society.

This course develops the technical, creative and analytical skills needed to be successful media practitioners in both the Irish and global digital media industries. The design of digital media for human use is a crucial skill in contemporary society: How to design the content and interaction for websites? How to improve the usability and usefulness of portable devices? How to design a new killer app for smart phones? How to create new ways to engage and connect people through the use of interactive technologies?

The aim of the programme in Digital Media Design is to equip you with degree level competence in new interactive media technologies. It will:

- Provide you with the expertise in the use of a variety of audio, video and interactive digital media
- Give you an understanding of the human and social issues surrounding the use of digital media
- Introduce you to a range of design disciplines relevant for interactive digital media design
- Support you in developing the knowledge and professional skills you will need for an active role in the diverse field of digital media

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Department of Computer Science and Information Systems

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B.Sc in Digital Media Design

Year 1 - Semester 2

Module	Description
CS4005 Perceptual Systems & Multimedia	This module aims to create an awareness and understanding amongst students on 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.
CS4052 Foundations of Interaction Design	This module will provide students with an understanding of the key elements required for the design of interaction. After a consideration of the basic principles of design, the key features of narrativity and interactivity will be explored and analysed. The potential of different kinds of media to support interactivity and the methods of involvement of participants in the creation of new media will also be studied.
PD4102 Design Studio 2	The aim of this module is to introduce students to Design Methods and Design Techniques and to develop the basic skills in and cognitive processes of product design.
MA4702 Technological Mathematics 2	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.
ET4151 Digital Electronics 1	The aim of the module is to give students an introduction to many of the important hardware elements and topics in digital circuits. It prepares them for more detailed in-depth coverage of these topics in later modules, yet is sufficient to allow for some practical laboratory work to reinforce the concepts introduced.
PD4033 Design for Professional Practice	PD4033 In this module student will develop an understanding of tools and processes for design research; develop a language and knowledge of user-centred research; and undertake project-based-learning in design research, resulting in the design guide/specification.
SO4063 Introduction to Social Research Methods	SO4063 In this module students will learn to critically locate research traditions within sociology; relate research methods to methodological traditions; assess the strengths and weaknesses of various research methods; write a research proposal; and design, carry out and write up a basic research project.

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.
PD4004 Design Visualisation	In this module students will gain an understanding of and have the ability to visualise product design ideas and interpret those of others; appreciate the importance of visualisation and presentation in professional service to clients; and use visualisation techniques to represent their design proposals.

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Year 3 - Semester 1

Module	Description
Co-Op	CS4310 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	To examine the processes by which the development of computer-based information systems is managed, and the considerations needed for successful implementation of such systems.
MF4756 Product Design and Modelling	In this module students will learn to construct robust part files using the SolidWorks parametric modeller; construct assembly documents and configurations from modelled part files; and generate fully dimensioned and annotated working drawings for created parts and assemblies.
CS4458 Computer Supported Cooperative Work	This module will introduce students to the CSCW and groupware field. It will cover basic concepts in the field and include an examination of software systems designed to support cooperative work - their design, use and evaluation.
CS4078 Applied Interaction Design	This module focuses on participatory, collaborative, and adversarial approaches to design. It focuses on tool, techniques and methods to engage potential end-users and stakeholders in the design of new technology. This module will provide the student with knowledge of and practical experience in participatory/collaborative design supporting participatory innovation in the design of human-centered systems. Participatory Design methods such as design probes and design games will be discussed. The module is project based and student will have to run participatory design sessions and develop individual design concepts or scenarios.

Electives (Choose 1)	
CS4358 Interactive Multimedia	Students will evaluate interactive multimedia designs based on a human-centred, iterative approach; develop use scenarios for a given interactive problem domain and define as well as assess usability for interactive media products.
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
SO4037 Qualitative Methods for Sociological Research	SO4037 This module introduces students to Qualitative Research Methods. It asks: What is qualitative research? What are the different paradigms, which fall within the parameters of qualitative research? It examines the history of qualitative research. Approaching research from a qualitative perspective, generating ideas, defining cases, analysis and interpretation. Doing interviews and conducting observation studies.
CS4020 Information Society	CS4020 This module offers a socio-economic, political and cultural exploration of the "internet society". The module will provide a series of perspectives on the network society. In particular, the module provides an overview of the main approaches of technological determinism and social constructivism, and introduces to a third option with the contribution of Actor Network theory. In the module a series of case study of different socio-technical systems will be also discussed. This module will help students understand some of the current debates in the media about the effects of ICT on society. The module will help the student to develop critical thinking around key issues of the Information Society.
CS4247 Digital Media Design Project 1	The rationale for this module, and the succeeding module (CS4248), is allow students, through the medium of undertaking a substantial individual project, to integrate and apply their previous learning and deepen their knowledge of some particular application or research area relevant to the course.

Year 4 – Semester 2

Module	Description
CS4047 Multimedia Industry Perspectives	The aim of this module is to develop students' understanding and knowledge about various digital media industry processes, and to encourage students to examine digital media as a number of varying career options. It will provide the opportunity to introduce a

	number external experts from a variety of multimedia industry related areas within a flexible framework.
SO4046 Quantitative Methods or Sociological Research	This module provides a systematic introduction to quantitative approaches to data collection and analysis. The module focuses both on the theoretical and methodological implication of quantitative methods, and on the practical skills required for the collection, processing, statistical analysis and presentation of quantitative data, including the use of statistical software packages.
CS4248 Digital Media Design Project 2	The rationale for this module, and the preceding module (CS4247), is to allow students, through the medium of undertaking a substantial individual project, to integrate and apply their previous learning and to deepen their knowledge of some particular application or research area relevant to the course.