Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin

School of Computer Science and Statistics

MSc in Interactive Digital Media 2018-2019

Contents

Notes about this Handbook

Alternative formats of the Handbook can be made on request. Please contact the Course Administrator to arrange this.

In the event of any conflict or inconsistency between the General Regulations published in the University Calendar and information contained in programme or local handbooks, the provisions of the General Regulations in the Calendar will prevail.

Disclaimer: The information contained in this document is intended to provide a guide to those seeking admission to the programme, and to the students on the course. Trinity College Dublin reserves the right to update or change syllabi, timetables, or other aspects of the programme at any time. Changes will be notified to current students by email.

Course Director's Welcome

Dear Postgraduate Student,

Welcome to the MSc in Interactive Digital Media! I hope that we have an enjoyable and interesting year together.

This handbook contains important information on various aspects of the course: dates of lecture terms, examination regulations and course outlines. Please take some time to read it and keep it for reference during the year.

The course will be taught jointly by a group of people. See the attached list of modules for information on the lecturers and content of the five main modules. I can be contacted at (01) 896-1540, or better, email Mads.Haahr@tcd.ie throughout the year if you have any queries or problems in relation to the academic side of the course.

Margaret Murray is the executive officer who administers the course; her number is (01) 896-2418, email Margaret.Murray@scss.tcd.ie. Administrative queries should be addressed to Margaret in the first instance.

Cathal O'Connor is the Technical Officer assigned to the course; his number is (01) 896-3422, email Cathal.Oconnor@scss.tcd.ie. All software queries should be addressed to help@sccs.tcd.ie.

Best wishes,

Dr Mads Haahr
Course Director

Introduction

The MSc in Interactive Digital Media has been running since 1996. Each year, students are selected from different backgrounds to receive a foundation in the theory and practice of creating and developing applications using all types of digital media. The programme presents courses in Interactive Narrative, Graphic Design, Audio, Video and Sensor Technologies in combination with an Introduction to Computer Science and Client and Server Programming Technologies and Platforms. This MSc is different in that it focuses on teaching theory rather than on applications. Students are exposed to programming languages and platforms as well as methodologies for the creation, capture and presentation of text, graphics, audio and moving images.

Careers

The Digital Media Sector is a vibrant and growing sector in Ireland – it is now established internationally and the expectation is that Irish companies will become major players in the market working in partnership with overseas companies. Over the last two years, the digital media sector has experienced growth despite the recession. It is one of the few sectors to escape the downturn and there are currently many opportunities for experienced interactive designers and web programmers.

Since the establishment of the MSc in Multimedia Systems course in 1996, about 500 students have graduated with a postgraduate qualification in digital media and have found careers in different areas:

- Education
- Software development
- Games industry
- Start-up companies
- Video editing and post production
- Consultancy
- Online publishing
- Television and broadcasting
- Digital media
- Research

Graduates from this course will have a broad background in the technologies and processes involved in creating and publishing digital media applications. Given the range of topics covered in the course, students are able to choose the area that they are most interested in with a view to working in that area of digital media after graduating.

Goals of the Course

The primary goal of the MSc program is to equip graduate students with an integrated set of skills that will allow them to develop their professional careers in the area of digital media. The particular focus of the program is to equip students with the theoretical and practical background necessary to enable them to participate in the design and publication of digital media applications. The program presents the state of the art in the design and implementation of digital media applications and also prepares students to embrace future developments in the field.

The focus of the program is on skills that are not normally imparted to students during their undergraduate years and that will develop graduates' capacity as leaders in the field. Thus, the program is intended to prepare graduates to pursue careers in industry and education, as designers, developers and project managers, to establish their own consulting or software development companies, or to undertake basic research in the field.

Assessment

To be allowed to proceed to the Research Project (30 credits) leading to the degree of MSc in Computer Science, candidates must (i) achieve an overall mark of at least 50% in the credit-weighted average mark for all taught modules, and (ii) for modules amounting to not less than 50 credits, to include the Research Paper, achieve a mark of at least 50% in each individual module and for modules amounting to not more than 10 credits achieve a mark of not less than 50% in each individual module. Students who fail one or more modules or who fail the Research Paper, may, at the discretion of the Court of Examiners, re-attempt through submission of supplementary assessment(s) by an appointed date or by sitting supplementary examination(s). The maximum mark awarded for supplementary assessment or examinations is 50%. To complete their Research Project satisfactorily, students must submit their Research Project by the prescribed date and must obtain a passing mark of 50% in their Research Project. The Research Project is assessed in compliance with research dissertation regulations. The final mark for the course is based on a credit-weighted average of the mark awarded in each module, including the Research Project.

In order to qualify for the award of MSc with Distinction, students must, as a minimum, achieve a mark of 70% or above in the Research Project, and achieve at least 68% in the unrounded overall average mark for the taught modules and, for modules amounting to not less than half of the required credits for the taught component of the course, achieve a minimum mark of 70% in each individual

module. A Distinction cannot be awarded if a candidate has failed any credit during the course.

Students who pass the required modules and the Research Paper, but who are not permitted to or otherwise do not submit a Research Project, or who do not satisfactorily complete their Research Project, will be eligible for the award of a Postgraduate Diploma in Computer Science. The Postgraduate Diploma with Distinction is awarded to students who achieve at least 68% in the unrounded overall average mark for the taught modules and achieve a minimum mark of 70% in individual modules which together amount to at least half of the required credits for the award of the Postgraduate Diploma associated with the student's registered course. All assessments and the Research Project will be subject to external review.

Student Supports and Services

Trinity College offers a range of supports and services for students, including Counselling, Disability Service, Health Service and a Sports Centre. For more information, and to download the Student Service Handbook, please go to:

http://www.tcd.ie/students/supports-services/

Student Societies and Sports Clubs

Trinity College has a rich collection of student societies, ranging from the International Student Society to Chess, Dance, Math, Film, Food and Drink, Hiking, Jazz, Juggling, Photography, Theatre, Politics, Visual Arts and many others. Joining student societies is a great way to meet other students and develop new friendships. For more information, please go to:

http://trinitysocieties.ie

The College also has a range of sports clubs open to all students. For a list of sports clubs and information about joining, please go to:

http://www.tcd.ie/Sport/student-sport/ducac/?nodeId=94&title=Sports_Clubs

The Graduate Students Union

Situated on the second floor of House Six, the Graduate Students' Union is an independent body within College that represents Postgraduate students throughout College. Upon registration, all postgraduates are automatically members. It is run by two full-time sabbatical officers; this year they are Oisín Coulter, President 2018-2019, and Gogoal Falia, Vice President 2018-2019. As the head and public face of the Union, Oisín is responsible for strategy and policy formulation, as well as sitting on a

wide range of committees. Contact them at either president@tcdgsu.ie | (01) 896-1169 or vicepresident@tcdgsu.ie | (01) 896-1006.

Emergency Procedures

In the event of an emergency, **dial Security Services on extension 1999**.

Security Services provide a 24-hour service to the college community, 365 days a year. They are the liaison to the Fire, Garda and Ambulance services and all staff and students are advised to always telephone extension 1999 (+353 1 896 1999) in case of an emergency.

Should you require any emergency or rescue services on campus, you must contact Security Services. This includes chemical spills, personal injury or first aid assistance.

It is recommended that all students save at least one emergency contact in the phone under ICE (In Case of Emergency).

Data Protection

For information about College treats data related to students, please see the following:

https://www.tcd.ie/info_compliance/data-protection/student-data/

Academic Fees

For details of fees for this course please go to:

http://www.tcd.ie/Treasurers_Office/

While the course was previously part funded under the Skills Conversion Program of the Higher Education Authority, unfortunately this is no longer the case.

Health and Safety

The health and safety manual is now available online at the following link and contains important information for students and forms for completion by incoming students to the course. The URL is:

https://ems.tcd.ie/assets/documents/pdf/H&S%20Guidance%20Manual_2015-16_final.pdf

Taught Modules

The modules being run this year are shown in Table 1. Each student takes CS7025, CS7026, CS7027, CS7028, CS7029, CS7044, and CS7043.

Module Code	Module Name	Module Coordinator	ECTS	Assessment	Semester	Comment
CS7025	Programming for Digital Media 1+2	Kathryn Cassidy	5+5=10	Continuous Assessment	1 & 2	-
CS7026	Authoring for Digital Media 1+2	Nina Bresnihan	5+5=10	Continuous Assessment	1 & 2	-
CS7027	Contextual Media 1+2	Mads Haahr	5+5=10	Continuous Assessment	1 & 2	
CS7028	Audio, Video and Sensor Technologies 1+2	Mads Haahr	5+5=10	Continuous Assessment	1 & 2	-
CS7029	Visual Computing and Design 1+2	John Dingliana	5+5=10	Continuous Assessment	1 & 2	-
CS7044	Research Paper	Mads Haahr	10	12,000 word paper	1 & 2	-
CS7043	Final Project	Mads Haahr	30	Examined by specialist supervisors	2	

CS7025: Programming for Digital Media

Module Code	CS7025
Module Name	Programming for Digital Media 1 + 2
Module Short Title	N/A
ECTS weighting	5 + 5 = 10 ECTS
Semester/term taught	Semesters 1 and 2
Contact Hours	Semester One – 11 two-hour lectures 11 hours lab, 20 hours assignments Semester Two – 11 one-hour lectures, 22 hours lab, 20 hours assignments
Module Personnel	Kathryn Cassidy
Learning Outcomes	Students with no programming background will be given the knowledge and confidence to tackle small-scale programming projects using JavaScript. The emphasis on browser-based programming examples means that students will also be familiar with many typical techniques for producing interactive effects in web-based applications. Students will also be aware that the core programming techniques can be applied to other programming languages, and are therefore prepared for technologies introduced on later courses on the degree programme. On completion of this module, students will be able to: • Understand different software and hardware platforms • Be familiar with basic programming techniques • Understand JavaScript • Know the network model for the Internet • Understand client/server programming
Module Learning Aims	• Give a good grounding in the design and structure of the modern Internet • Illustrate suitable techniques for standalone and Client-Server programming
Module Content	**Semester 1** • Programming concepts • Variables and data storage • Statements and flow of control • Functions and modularity • Input and Output

	Semester 2 • The design and structure of networking. • Technology for Client/Server programming in a networked environment. • Introduction to server-side scripting. • Introduction to database technology. • Software design issues in network applications. • Development for mobile platforms
Recommended Reading List	**Semester 1** 1. David Flanagan: JavaScript: The Definitive Guide 2. Doug Crockford: JavaScript: The Good Parts 3. Paul Vickers: How to think like a programmer **Semester 2** • Comer, Douglas: Computer Networks and Internets, 5th Edition, Prentice Hall, 2010. • Tanenbaum, Andrew S. and David J. Wetherall: Computer Networks, 5th Edition, Prentice Hall, 2010. Website: http://mymodule.tcd.ie/
Module Pre Requisite	
Module Co Requisite	
Assessment Details	Assessment is by continuous assessment (weekly labs, individual and group projects, and in-class tests).
Module approval date	N/A
Approved By	N/A
Academic Start Year	N/A
Academic Year of Data	1819

CS7026: Authoring for Digital Media

Module Code	CS7026
Module Name	Authoring for Digital Media 1 + 2
Module Short Title	N/A
ECTS weighting	5 + 5 = 10 ECTS
Semester/term taught	Semesters 1 and 2
Contact Hours	Semester One – 11 two-hour lectures, 11 one-hour lectures Semester Two – 11 two-hour lectures, and 11 one-hour lectures
Module Personnel	Assistant Professor Nina Bresnihan
Learning Outcomes	On completion of this module, students will be able to: • Design and build valid, accessible websites for delivery on all digital platforms • Have a thorough understanding of HTML5 and CSS3 • Have a good understanding of Web Accessbility issues • Build websites using HTML5 and CSS3 for delivery across multiple devices • Understand how to design an information architecture for designing websites
Module Learning Aims	• This module teaches the basic skills required for designing and implementing websites. • It will introduce the standard mark-up languages used on www along with CSS. • In the First Semester, students will learn how to develop basic websites using HTML5 and CSS3. • In the Second Semester, more advanced web authoring skills will be taught and strategies for designing and implementing interactive applications for delivery on all digital platforms including mobile phones and tablets and desktops • Students will learn the fundamentals of developing Information Architectures and designing intuitive navigation systems.
Module Content	**Semester 1** • Introduction to Markup Languages • HTML5 • CSS3 • Web Standards and Accessibility

	Semester 2 • Comprises a combination of short lectures, discussions and tutorials. • The lectures will cover the designing for different browsers and devices, audio and video Integration, social media integration, implementation on CMS platforms. • They will also introduce a design methodology, which will be adopted (or adapted) by groups during the project implementation phase of the semester. • A project is set for completion during the semester. (Exact dates are contingent on Academic Calendar) This will be a group project (group membership: minimum 3, maximum 5). The remainder of the semester will comprise tutorial meetings with each group with required deliverables each week.
Recommended Reading List	*Defensive Design for the Web,* Matthew Linderman and Jason Fried (Author) Publisher: 37 signals A Practical Guide to Designing with Data, Brian Suda and Owen Gregory CSS Mastery: Advanced Web Standards Solutions by Andy Budd, Simon Collison and Cameron Moll Designing with Web Standards (3rd Edition) by Jeffrey Zeldman and Ethan Marcotte jQuery in Action, Second Edition by Bear Bibeault and Yehuda Katz *Responsive Web Design*, Ethan Marcotte, A Book Apart *Information Architecture* for the World Wide Web: Designing Large-Scale Web Sites, Peter Morville and Louis Rosenfeld Handcrafted CSS: More Bulletproof Web Design, Dan Cederholm and Ethan Marcotte
Module Pre Requisite	N/A
Module Co Requisite	N/A
Assessment Details	Assessment is by Continuous Assessment throughout the year Assignments for Continuous Assessment include: • A series of HTML & CSS development projects • Website Group Project (Semester Two) : Marks for the project are based on attendance, participation, engagement, delivery of required project materials week to week, and presentation and critique session at project's end. Late or non-delivery of required material to set deadlines will incur penalties.
Module approval date	N/A
Approved By	N/A
Academic Start Year	N/A
Academic Year of Data	1819

CS7027: Contextual Media

Module Code	CS7027
Module Name	Contextual Media 1 + 2
Module Short Title	N/A
ECTS weighting	5 + 5 = 10 ECTS
Semester/term taught	Semester 1 and 2
Contact Hours	66 Hours Semester 1: 33 hours, 3 hours per week Semester 2: 33 hours, 3 hours per week
Module Personnel	Semester 1: Vivienne O'Kelly (Cultural and Critical Theory), Alex Towers, Anna Ní Uiginn, Cormac Stewart (Legal Issues for Digital Publishing) Semester 1: Mads Haahr
Learning Outcomes	**Semester 1** **Cultural and Critical Theory** On successful completion of the module students will have gained: • Essay writing and discursive skills • Critical skills with regard to technology, culture and society • A broad overview of the state of the art in new media art, critical design and media theory **Legal Issues for Digital Media** On completing this module, the students will be able to: • Identify assets that may be protected as intellectual property, and distinguish between intellectual property in its different forms. Identify and address legal considerations arising from establishing an online presence. **Semester 2** **Interactive Narratives** On completion of the module, students will be able to: • Recognise the variety of "interactivities" encountered in digital media • Understand how interactivity affects narrative design and communication • Analyse interactive narratives and assess trends over time

	• Create interactive narratives for a range of digital media **Game Studies and Design** On completing this module, the students will be able to: • Analyse games as texts in a structured and methodical manner in terms of story, aesthetics, gameplay and technology • Understand games from a historical and cultural perspective • Understand how platform considerations (e.g., controllers, hardware and social context) affects genre and gameplay • Design games using user-centric game design methodology and produce industry-standard game design documents •
Module Learning Aims	**<u>Semester 1</u>** **Cultural and Critical Theory** This module will provide a cultural and critical context for interactive digital media practices. The relationship between culture, society and technology are explored, both at the level of theory and praxis. This module component is cross-disciplinary, using a range of theories from sociology, critical theory, anthropology, science and technology studies, software studies and media theory. **Legal Issues for Digital Media** Legal issues relating to establishing a presence online are explored together with how to identify and go about securing intangible assets (intellectual property) in digital media This course is designed to give students an overview of the legal considerations that arise when working in the online environment. While not designed to put students in a position that they could advise on the subjects discussed, the course should enable students to identify and address possible commercial opportunities and potential pitfalls before they actually arise. Students should be aware of the variety of commercial opportunities that may arise through the deliberate or incidental creation of assets that may be protected via one or more forms of intellectual property. Students should also be able to identify potential problems associated with the use of third party intellectual property, and should also be aware of the various legal requirements relating to retaining information and doing business in the online world. **<u>Semester 2</u>** **Interactive Narratives** This course focuses on the concept of interactivity itself - how it is recognised and understood in both theory and in practice - and how this impacts on developing narrative structures for digital media. Students will be introduced to a variety of theories of interactivity, the challenges and potential in creating narratives with interactivity and the broad array of styles and contexts of interactive narrative. Topics include: • Introduction to interactive narratives • Defining interactivity - in technology, users and communication • The history of narrative • Forms of Narrative - linear, non-linear, map • Creating narrative - tools, stories, characters, flow • The role of control and feedback • Properties of digital interactive narratives

	Game Studies and Design Games constitute perhaps the most interactive of the interactive media. They also constitute a booming section of the entertainment industry and in addition have a range of serious applications, for example in learning and training. The course gives the student a solid grounding in the theory of games as a medium and in the practice of game design.
Module Content	**<u>Semester 1</u>** **Cultural and Critical Theory** • What is Technology? What is Culture? • Epistemologies and technology (constructivism, post-positivism, pragmatism etc) • The 'big' debates (extropianism, neo-ludditism, anarcho-primitivism) • Technological determinism & Actor Network Theory (Technology Studies I) • The body & technology (from Foucault's biopower to Haraway's cyborg) • Feminism & technology (Layne, Butler etc) • Technology & postindustrialism (labour, autonomy, temporal dissolution) • When media becomes 'new' (Frankfurt School, McLuhan, Manovich) • Post-structuralism, (semiotics, simulacra & simulation) • Ontology of the techno-self • Review, essay discussion • What is New Media Art • Technology studies II: STS & Actor Network Theory, • Media Archaeology • Convergence Culture • Software studies: Code, Protocol and everyday life • Overview: The Network Society • Locative Media & Ubiquitous Computing • Networked Publics & Smart Mobs: The role of social and networked media in political activism, sociality and play • Political Economy of Communications 1: The Audience Commodity, Immaterial Labour, Produsage, Web 2.0 • Political Economy of Communications 2: FLOSS & Free Culture • Tactical Media, Hactivism & Critical Design **Legal Issues for Digital Media** • The Data Protection Act and its requirements • The E-commerce Act, the Distance Selling Regulations & other consumer-related law relevant to running an online business. • Privacy issues in the online environment • The variety of Intellectual Property rights available (trademarks, copyright, patents, database rights, registered & unregistered designs), and what they can be used to protect. Domain name registrations and the diffuse boundary between them and intellectual property (trademarks in particular)

	Semester 2 **Interactive Narratives** This course covers theory, historical assessment and practical elements of creating interactive narratives. Course materials include lecture notes, links to online materials and suggested a reading. **Game Studies and Design** The course consists of two 11-week modules. The first part is an introduction to the emerging field of game studies and deals with the analysis of computer and video games as cultural artefacts on a par with film, literature and drama. The following topics are covered: • The history of electronic games • Interface, genre and gameplay • Game analysis: Story, aesthetics, mechanics and technology • Archetypes and emotional engagement • Emerging interfaces, such as bio and brain interfaces In the second half of the course, the students learn about formal and applied approaches to game design and produce a detailed design document as part of the course work. This part of the course is heavily project-driven. Topics include: • Player-centric game design • Core mechanics and gameplay modes • Games' internal economy • Level Design
Recommended Reading List	**Semester 1** **Cultural and Critical Theory** Bijker, Wiebe (Ed.), (1994) *Shaping Technology, Building Society,* London: MIT Press. Dunne, Anthony. (2008) *Hertzian Tales: Electronic Products, Aesthetic Experience and Critical Design*, London: MIT Press. Fuller, Matthew (Ed.) (2008). *Software Studies: A Lexicon*, London: MIT Press. Halls, Stuart.,(Ed.) (1997). Representation: Cultural Representations and Signifying Practices Haraway, Donna., (1991). *Simians, Cyborgs & Women: The Reinvention of N*ature Heidegger, Martin., (1993). 'The Question Concerning Technology'. *Basic Writings.* Mackenzie, Donald (Ed.), (1999) *The Social Shaping of Technology*, London: Open University Press. Varnelis, Kazys (Ed.), (2007) *Networked Publics*, London: MIT Press. **Legal Issues for Digital Media** *(to appear)* **Semester 2** **Interactive Narratives** Barthes, Roland (1977) Image, Text Music Fontana Press. Baudrillard, Jean (1997) "Aesthetic Illusion and Virtual Reality" Art & Artefact ed. Nicholas

	Zurbrugg, Sage, London Harrigan, Pat and Wardrip- Fruin, Noah Edited by (2004) First Person: New Media as Story, Performance, and Game Cambridge, MA: The MIT Press. Harmon, Katherine (2004) You Are Here: Personal Geographies and Other Maps OF The Imagination Princeton Architectural Press. Kiousis, Spiro (2002) 'Interactivity: a concept explication' new media & society, Vol. 4(3) Sage, London Laurel, Brenda (1991) Computers as Theatre Manovich, Lev (2001) The language of new media, MIT Press, Cambridge, MA: Murray, Janet H (1997) Hamlet on the Holodeck: The Future of Narrative in Cyberspace. New York: The Free Press **Game Studies and Design** Ernest Adams. Fundamentals of Game Design (2nd Edition). New Riders Publishing, 2009 Jesper Juul. Half-Real: Video Games between Real Rules and Fictional Worlds. Cambridge, MA: The MIT Press, 2005 Joost Raessens and Jeffrey Goldstein (eds.) Handbook of Computer Game Studies. Cambridge, MA: The MIT Press, 2005 Jesse Schell. The Art of Game Design: A Book of Lenses. Morgan Kauffman, 2008 Mark J. P. Wolf and Bernard Perron (eds.). The Video Game Theory Reader. Routledge, 2003 Janet H. Murray. Hamlet on the Holodeck: The Future of Narrative in Cyberspace. New York: The Free Press, 1997 Steven Johnson. Everything Bad is Good for You: How Todays Pop Culture Is Actually Making Us Smarter. New York: Riverhead Books, 2005 Selected papers from *Game Studies* and *Games and Culture*
Module Pre Requisite	N/A
Module Co Requisite	N/A
Assessment Details	Assessment is by Continuous Assessment via essays, projects, in-class tests, and demonstrations.
Module approval date	N/A
Approved By	N/A
Academic Start Year	N/A
Academic Year of Data	1819

CS7028: Audio, Video and Sensor Technologies

Module Code	CS7028
Module Name	Audio, Video and Sensor Technologies 1 + 2
Module Short Title	N/A
ECTS weighting	5 + 5 = 10 ECTS
Semester/term taught	Semester 1 and 2
Contact Hours	Semester One – 11 two-hour lectures, 11one-hour lectures, 20 hours assignments Semester Two – 11 one-hour lectures, 11 two-hour lectures, 20 hours assignments
Module Personnel	Semester 1: Vivienne O'Kelly, Jack Cawley Semester 2: Aidan Maguire, Niall O'Hara
Learning Outcomes	**Semester 1** **Audio Technologies (Jack Cawley)** On successful completion of the module, students will be able to: • Understand the nature of sound • Use a mixing control and Digital Audio Workstations (DAWs) • Use Virtual Studio Technology (VST plug-ins) • Set up microphones for recording voice and acoustic instruments • Conduct an audio recording session in a sound recording studio • Control the audio in a live performance • Create audio software using the Pure Data visual programming environment. **Moving Image for Digital Applications (Vivienne O'Kelly)** This module aims to familiarize students with key concepts and debates surrounding the moving image. Theories of representation are explored alongside the development and expansion of the moving image in society. Questions of realism will be discussed; the conventions of commercial narrative cinema will be considered, along with strategies of representation that interrogate notions of transparency. Works that offer alternative approaches to form, that seek to expand the possibilities of the moving image and re-imagine the role of the spectator shall be the focus of weekly discussion. A diverse range of influential theoretical, critical and cultural perspectives related to the study of the moving image will be illustrated via screenings of relevant material. On successful completion of the module, students will be able to: • Assess the technical requirements for producing a video. • Operate professional camera and apply shooting techniques. • Produce professional quality video projects • Recognise common terms and practices in the creation of a video • Shoot / light an interview with edited cutaway sequences

	Semester 2 **Moving Image for Digital Applications (Tom Burke)** (todo: Tom and/or Vivienne) **Introduction to Sensor Technologies (Niall O'Hara)** This module affords an overview of the fundamentals of physical computing, providing the tools for basic circuit building and electronics, programming with Arduino, sensor and actuator construction, and communication between Arduino and the processing IDE.
Module Learning Aims	**Semester 1** **Audio Technologies (Jack Cawley)** • Provide a practical introduction to digital audio technology for beginners • Illustrate suitable techniques for the development of systems for interactive sound manipulation **Moving Image for Digital Media Applications (Vivienne O'Kelly)** Lectures in the first semester aim to familiarize students with key concepts and debates surrounding the moving image. Contact hours are comprised of both teaching & viewing time slots. Students will be given a practical introduction to video production including camera controls, composition, lighting and editing. This will give the students the opportunity to effectively / confidently use video production as part of a multimedia project Contact hours in the Second Semester are comprised of camera, lighting and editing workshops. Attendance at all lectures and workshops over the two semesters is compulsory. **Semester 2** **Moving Image for Digital Media Applications (Aidan Maguire)** (todo: Tom and/or Vivienne) **Introduction to Sensor Technologies (Niall O'Hara)** (todo: Niall O'Hara)
Module Content	**Semester 1** **Audio Technologies (Jack Cawley)** • Introduction to Sound and Acoustics: Acoustic waves; Time and Frequency; Decibels and loudness; Inverse Square Law; Transducer systems • Room Acoustics and Psychoacoustics: Pitch, Loudness and Timbre; Impulse responses; Room acoustics: Early Reflections, diffuse field; Psychoacoustic parameters: IACC, LE, LF; Absorbers, diffusers and room treatment • Digital and Analog Audio: Sampling Rate; Bit depth; AD/DA conversion; Sampling theorem; Dynamic Range • Mixing Console Workflow: Gain control; Equalizers; Panning, summing and master faders; Auxiliary channels; Phantom power; Pre-amplification; Pre- and Post-fader control; Cabling and standards • Microphones: Dynamic microphones ; Condenser microphones; Microphone Directivity; Proximity effect • Multitrack Recording – Digital Audio Workstations (DAWs): Introduction to audio sequencing; Sequencer basics; Monitoring; Click track recording; Editing; Stereo Mixdown • Audio Signal Processing: Equalizers; Reverberation; Dynamic Range Processing; Modulation Effects; Distortion; Pitch Correction

- Mixing in DAWs: Panning; Equalization; Automation; Inserts; Sends; Mixing for video and games
- Recording Techniques: Monophonic microphone placement; Stereophonic Recording Techniques: Intensity stereo recording, Coincident stereo recording, ORTF, Binaural Audio
- Stereophonic Mastering: Master bus signal processing; Mastering for CD/DVD; The loudness wars; Dithering; Compression & Codecs
- MIDI: How MIDI works; Basic MIDI commands; General MIDI; MIDI Interfaces; MIDI in sequencers; Quantization; Virtual Instruments (VST plug-ins)
- Introduction to Surround Sound: Overview of Multi-Channel Audio Technology; 5.1 Surround sound basics; Setting Up for Surround Sound on commercial loudspeaker layouts; Surround Audio calibration
- Mixing and mastering for 5.1 surround sound: Surround Panning; Surround Sound signal processing; Reverberation control; LFE Channel considerations; Stereo Compatibility; Discrete Vs. Matrixed Surround Sound; Dolby Digital Encoding
- Interactive Sound Control with Pure Data (PD): Introduction to Real-time Audio Signal Processing; Audio I/O control with PD; Multichannel Audio in PD; Audio Filtering and DSP with PD; MIDI in PD

Moving Image for Digital Applications (Vivienne O'Kelly)

(todo: Vivienne)

Semester 2

Moving Image for Digital Applications (Tom Burke)

Specific topics addressed in this module include:

- Narrative and narration
- Editing
- Mise-en-scène
- Screen Media and the Politics of Representation
- Documentary Film and Video
- Projection in Performance
- Moving Image and Interactive Installation
- Old Media, New Media and the Contemporary Media Landscape
- Camera, Lighting and Editing in Practice
- Digital Video Specifications
- Exposure Control & Colour Balance
- Camera Controls
- Audio Recording
- Composition & Framing
- Lighting Techniques
- Post Production

Practical topics include:

- **Introduction to Digital Video**
  - Introductions

- Course Outline

- **Digital Video Specifications**
  - Sensors: CMOS, CCD
  - Video formats
  - Pixel Aspect ratio
  - Frame rates
  - Resolution
  - Scan Method

- **Exposure & Colour Balance**
  - Aperture
  - Shutter Speed
  - ISO / Gain
  - White Balance

- **Introduction to Camera Systems**
  - Controls
  - Functions
  - Operation
  - Tripod vs Handheld

- **Audio techniques for video production**
  - Diegetic, Non Diegetic Sound
  - Types of microphones
  - Microphone placement
  - Room tone & Ambient Sound

- **Framing & Shot Types**
  - Shot Size
  - Composition theory
  - Head room & Looking room
  - Depth of Field
  - Cutaways

- **Lighting**
  - Safety
  - Hard & Soft Light
  - Colour Temperature
  - Gels & reflectors
  - 3 Point lighting
  - Lighting Ratios

- **Editing with Final Cut Pro**
  - Creating a new Final Cut Pro project
  - File formats
  - Capturing Footage
  - Editing
  - Exporting Movies

Introduction to Sensor Technologies (Niall O'Hara)

- Introduction to Sensor Technology: Providing on overview of Physical Computing / Introduction to the fundamentals of Electronics / Introduction to the components and tools used in the course.
- Introduction to Physical computing
- Basic Electricity and Electronics: Introduction to Electricity; Ohm's Law; What is a circuit; Reading a Resistor Chart; Reading a Schematic; Principles of Electromagnetic

	transduction; Using a solder-less breadboard to build a prototype circuit. • Sensors and Actuators: Digital and Analogue sensors and actuators • Introduction to the Arduino: Introduction to fundamentals of programming with Arduino/ Simple I/O using DigitalWrite() and DigitalRead() / Building a simple circuit using a sensor and an actuator. • Introduction to the Arduino Board: Elements of the Microcontroller board; Introduction to the Software IDE; Setting up Arduino: port and board specifications
Recommended Reading List	Students will be given recommended reading on a weekly basis, and will also be expected to read broadly beyond the topics covered during lectures.
Module Pre Requisite	N/A
Module Co Requisite	N/A
Assessment Details	Assessment is by continuous assessment with projects and essays in each part of the module.
Module approval date	N/A
Approved By	N/A
Academic Start Year	N/A
Academic Year of Data	1819

CS7029: Visual Computing and Design

Module Code	CS7029
Module Name	Visual Computing and Design 1 + 2
Module Short Title	N/A
ECTS weighting	5 + 5 = 10 ECTS
Semester/term taught	Semesters 1 and 2
Contact Hours	**Semester 1** *Graphic Design* consists of 11 two-hour lectures over Semester 1. The main course material is delivered through illustrated lectures. Their function is to stimulate debate and introduce students to discourses, practices, processes and practitioners in historical and contemporary contexts. Students are expected to conduct self-directed study to further their particular interests. This activity is supported through the provision of the bibliography (see below). *Visual Computing* consists of two subparts taught over two semesters. • Semester 1 deals with *3D Graphics and Modelling* and consists of **one hour per week of lectures or labs over 11 weeks**. Assignments will involve creation of models, images and animations using industry standard tools, such as 3D Studio Max or Maya. Semester 2 deals with *Image Processing* and *Interactive Graphics* and consists of **three hours per week of lectures and labs over 11 weeks**. Assignments will involve graphical programming using languages such as Processing.
Module Personnel	Robin Fuller, John Dingliana, Kerstin Ruhland
Learning Outcomes	On successful completion of the module, students will be able to: **Graphic Design (Robin Fuller)** • Identify key formal elements in graphic design processes and practices • Analyse graphic design and visual cultural products in an informed and structured manner • Evaluate these products in terms of formal (i.e. functional) success and socio-cultural & technological relevance **Visual Computing (Kerstin Ruhland, John Dingliana)** • Identify some of the key theoretical principles, standard algorithms and data structures underlying modern graphical applications. • Discuss how fundamental components common to all computer applications are used to produce high-level computer imagery in digital media and interactive graphical programs. • Employ industry-standard computer-aided design software to create 3D objects and models, modify a virtual camera, animate and render images and videos of complex virtual scene.

	• Write computer programs for modifying computer images and generating graphical objects in 2D and 3D • Implement an interactive computer application, that handles input events form the user (such as mouse, keyboard input) to affect graphical output • Implement a basic virtual reality application. •
Module Learning Aims	**<u>Semester 1</u>** **Graphic Design (Robin Fuller)** • Introduce students to some of the key formal elements of graphic design practices • Introduce students to some of the major historical and critical debates concerned with graphic design and visual cultural products • To encourage students towards a critical engagement with visual cultural / technological intersections **Semester 1 & 2: Visiual Computing (John Dingliana, Kerstin Ruhland)** • The objective of this course is to equip students with a fundamental understanding of the technology underlying the field of computer images and how this is applied to advanced areas such as geometric modelling, rendering and animation. The module will explore modes of input and output and the limitations and potentials of (graphical) digital media. • Through discussion and practical assignments, the module should provide an understanding of the production processes, complexity, tools and challenges involved in production of digital images, animations and interactive graphical experiences, including games, virtual reality and augmented reality.
Module Content	**<u>Semester 1</u>** **Graphic Design (Robin Fuller)** • Information Design • Typography • Non-linguistic visual communication • Text and image interaction **Visual Computing 1 - 3D Graphics and Modelling (John Dingliana, Kerstin Ruhland)** • Introduction to computer graphics and applications • Representation and display of digital images • Basic mathematical principles used in computer graphics • 2D and 3D modelling data structures • Creating 3D models and scenes • Illumination and Lighting • Camera modelling, viewing and projection • Texture mapping

	• Animation • Practical components involving labs will use graphical modelling applications such as *3D Studio Max or Maya* **Semester 2** **Visual Computing 2 – Image Processing and Interactive Graphics (Kerstin Ruhland)** • Introduction to visual computing • Basic mathematical principles used in visual computing • Perception and representation of Colour • Programming interactive 3D Graphics • Image Manipulation, Enhancement, Filtering • Video processing • Procedural graphics • Interaction with graphical programs, • Virtual and Augmented Reality Practical components involving labs will use visual computing tools such as *Processing*
Recommended Reading List	**Graphic Design (Robin Fuller)** *Primers & Handbooks* • Adobe Creative Team; Classroom in a Book: Adobe Photoshop CS(6). Indianapolis: Adobe Press, 2012. (This title must correspond to the software installed on your computer. Check the software release number before purchasing / borrowing) • Adobe Creative Team; Adobe Illustrator CS(6) Classroom in a Book. Indianapolis: Adobe Press, 2005. (This title must correspond to the software installed on your computer. Check the software release number before purchasing / borrowing) • **Berger, John; Ways of Seeing. London: Penguin, 1990.** • Campbell, Alastair & Dabbs, Alistair; The Digital Designer's Bible. London: Ilex, 2005. • Dondis, Dondis A.; A Primer of Visual Literacy. Boston: MIT Press, 1974. • Jute, Andre; Grids: The Structure of Graphic Design (Pro-graphics). Hove: RotoVision, 1997. *Design Histories* • Aynsley, Jeremy; Century of Graphic Design: Graphic Design Pioneers of the 20th Century. London: Mitchell Beazley 2001. • Heller, Steven and Georgette Ballance (Eds.); Graphic Design History. London: Allworth Press, 2001. • Hollis, Richard; Graphic Design: A Concise History. London: Thames and Hudson, 2001. • Julier, Guy; The Thames and Hudson Dictionary of 20th-century Design and Designers. London: Thames and Hudson, 1993. • Livingston, Alan and Isabella Livingston; The Thames and Hudson Encyclopaedia of Graphic Design and Designers (World of Art). London: Thames and Hudson, 1992. • Meggs, Philip B.; A History of Graphic Design. London: John Wiley & Sons Inc, 1998. • Poynor, Rick (Ed.); Design Without Boundaries - Visual Communications in

Transition. London: Booth Clibborn, 1998.

- Poynor, Rick; Typographica. London: Laurence King Publishing, 2001.

Design Criticism

- Bierut, Michael (Ed.); Looking Closer: Critical Writings on Graphic Design. London: Allworth Press, 1995.
- Bierut, Michael (Ed.); Looking Closer 2: Critical Writings on Graphic Design. London: Allworth Press, 1997.
- Barnard, Malcolm; Graphic Design as Communication. London: Routledge, 2005.
- Crowley, David and Paul Jobling; Graphic Design - a Critical Introduction: Reproduction and Representation Since 1800 (Studies in Design and Material Culture). Manchester: Manchester University Press, 1996.
- Heller, Steven and Karen Pomeroy (Eds.); Design Literacy: Understanding Graphic Design. London: Allworth Press, 1997.
- Heller, Stephen (Ed.); Design Dialogues. London: Allworth Press, 1998.
- Heller, Steven; The Graphic Design Reader. London: Allworth Press, 2002.
- Lupton, Ellen & Abbott Miller (Eds.); Design Writing Research. London: Phaidon Press, 1999.

Typography

- Design Baines, Phil & Andrew Haslam; Type and Typography. London: Laurence King Publishing, 2002.
- Kane, John; A Type Primer. New York: Prentice Hall, 2002.
- Loxley, Simon; Type: The Secret History of Letters. London: IB Tauris, 2006.
- **Spiekermann, Erik; Stop Stealing Sheep and Find Out How Type Works. Berkeley: Adobe Press, 2002.**
- Triggs, Teal; The Typographic Experiment. London: Thames & Hudson, 2003.
- Williams, Robin; The Non-designer's Design Book: Design and Typographic Principles for the Visual Novice: IBM/Mac Edition. Berkeley: Peachpit Press, 1994.

Writing by Designers

- Fletcher, Alan; The Art of Looking Sideways. London: Phaidon, 2001.
- Maeda, John; Creative Code. London: Thames & Hudson, 2004.
- Mollerup, Per; Marks of Excellence: The History and Taxonomy of Trademarks. London: Phaidon, 1999.

Visual Culture

- Barnard, Malcolm; Approaches to Understanding Visual Culture. London: Palgrave Macmillan, 2001.
- Barthes, Roland; "Rhetoric of the Image." Image Music Text. London: Fontana, 1987. (also in: Evans Jessica and Stuart Hall (Eds.); Visual Culture: The Reader. London: Sage 1999.)
- Evans Jessica and Stuart Hall (Eds.); Visual Culture: The Reader. London: Sage 1999.
- Heywood, Ian and Barry Sandywell (Eds.); Interpreting Visual Culture: Explorations in the Hermeneutics of the Visual. London: Routledge, 1998.
- Kress, Gunther and Theo Van Leeuwen; Reading Images - The Grammar of Visual Design. London: Routledge, 1996.
- McQuire, Scott; Visions of Modernity: Representation, Memory, Time and Space in the Age of the Cinema. London: Sage, 1997.

	• Rose, Gillian; Visual Methodologies. London: Sage, 2001. • Virilio, Paul and Patrick Camiller (Translator); War and Cinema: The Logistics of Perception. London: Verso Books, 1989. • Williams, Raymond; Keywords. London: Fontana, 1976. *Information Design* • Tufte, Edward R.; The Visual Display of Quantitative Information. London: Graphics Press UK, 2001. • Tufte, Edward R.; Envisioning Information. London: Graphics Press UK, 1990. • Tufte, Edward R.; Visual Explanations. London: Graphics Press USA, 1997. • Tufte, Edward R.; Beautiful Evidence. London: Graphics Press UK, 2006. *Photographic Images* • **Barthes, Roland; Camera Lucida. London: Vintage, 1993.** • Batchen, Geoffrey; Burning with Desire. Boston: MIT Press, 1999. • **Benjamin, Walter; "The Work of Art in the Age of Mechanical Reproduction." - in Illuminations. London: Pimlico, 1999. (also in: Evans Jessica and Stuart Hall (Eds.); Visual Culture: The Reader. London: Sage, 1999.)** • Cotton, Charlotte; The Photograph as Contemporary Art. London: Thames & Hudson, 2004. • Burgin, Victor (Ed.); Thinking Photography. London: Macmillan Press, 1982. • Sontag, Susan; On Photography. London: Penguin, 1979. • Tagg, John; The Burden of Representation: Essays on Photographies and Histories. London: Palgrave Macmillan, 1988. • Warner Marien, Mary; Photography: A Cultural History (3rd Edition). London, Laurence King, 2010 • **Wells, Liz; "Thinking about Photography – Debates Historically and Now" – in Photography: A Critical Introduction. London: Routledge, 2000. Wells, Liz; Photography: A Critical Introduction. London: Routledge, 2000.** • Wells, Liz; The Photography Reader. London; New York: Routledge, 2003. **Image Processing and 3D Modelling (John Dingliana, Kerstin Ruhland)** The module is not based on a single textbook. The following are recommended readings. Note that the texts are somewhat overlapped in scope. • The Computer in the Visual Arts. Anne Morgan Spalter. • 3D Computer Graphics: A User's Guide for Artists and Designers. Andrew Glassner. • Computer Graphics: Principals and Practice (3rd Edition), John F. Hughes, Andries van Dam, Morgan McGuire, David F. Sklar, James D. Foley, Steven K. Feiner, Kurt Akeley. Addision Wesley Professional (2013) • The Computer Image, Alan Watt and Fabio Policarpo. Addison Wesley, 1998. • Learning Processing, Second Edition: A Beginner's Guide to Programming Images, Animation, and Interaction. Daniel Shiffman. Morgan Kaufmann (2015). • Processing: An Introduction to Programming. Jeffrey L. Nyhoff, Larry R. Nyhoff. CRC Press (2017).
Module Pre Requisite	N/A

Module Co Requisite	N/A
Assessment Details	Assessed continuous assessment by assignment and lab work is undertaken throughout the year.
Module approval date	N/A
Approved By	N/A
Academic Start Year	N/A
Academic Year of Data	1819

CS7043: Final Project

Module Code	CS7043
Module Name	Final Project
Module Short Title	N/A
ECTS weighting	30 ECTS
Semester/term taught	Semester 2
Contact Hours	Not timetabled, arrange with supervisor
Module Personnel	Mads Haahr (Coordinator) and other Lecturers
Learning Outcomes	On completion of this project, a student will be able to: • Demonstrate the skills and technologies learned during the academic year • Provide an opportunity for each student to demonstrate and showcase their individual skills • Provide an opportunity to build teamwork skills • Learn how to develop an initial creative concept into a fully realised interactive installation • Implement the web programming languages and tools learned in the course • Develop visual styles and designs suited to interactive narratives • Understand use of moving image in interactive narrative • Investigate new and innovative ways of interacting with web content • Understand how to deliver non-linear narratives for local and remote access • Create and edit audio content suited to online interaction and delivery
Module Learning Aims	The aim of the project is to provide a framework for students to work together as a single team and also as sub-groups (smaller teams) within an overall team structure. The creative brief will be defined by the project lecturers and the final web-based application will be launched in early September. This project will involve all students in the class – the final website will 'tell the story' of the project using all types of digital media – it will include words, images, moving images, audio and possibly innovative web interfaces. The story of the building can be told in many different ways, for example, history, residents, architecture, artefacts, design, The goal of this project is to promote teamwork and also to allow students to show their individual skills and experiences within the context of defined sub-projects. All coursework and assignments throughout the academic year will be directed towards acquiring and developing the skills required to complete the final project. Each student will write a paper (4-6 pages in length) which may be considered for publication in a reputable academic publication/journal – for example, ACM, IEEE. This paper must be submitted in electronic format to the Course Director. Sub-projects will be established with the overall project.

Module Content	
Recommended Reading List	
Module Pre Requisite	
Module Co Requisite	
Assessment Details	**Assessment:** Individual sub-projects will be supervised by the subject matter lecturer and will be reviewed by the Project Supervision team. Peer-to-peer review will be conducted within different sub-project teams. The overall final project will be reviewed by the team of Project Supervisors. 80% of the mark for the final project will be awarded to each student's individual contribution to the collaborative final project and 20% of the marks will be awarded for the Academic Paper. **Additional Requirements:** Each student must write an academic paper on their own contribution to the overall final project. This paper will be reviewed by the Project Supervision team and guidance will be given on routes to publish these papers in relevant journals and specialist publications.
Module approval date	N/A
Approved By	N/A
Academic Start Year	N/A
Academic Year of Data	1819

CS7044: Research Paper

Module Code	CS7044
Module Name	Research Paper
Module Short Title	N/A
ECTS weighting	10 ECTS
Semester/term taught	Semester 1 and 2
Contact Hours	Individual meetings with supervisor
Module Personnel	Mads Haahr (Coordinator) and other Lecturers
Learning Outcomes	On completion of this project, a student will be able to: • Identify a relevant and feasible area of research • Formulate and clarify a focused research question • Demonstrate clarity of problem definition and scope • Successfully plan and manage an extended research and writing process • Locate and assess potential research sources • Evaluate sources for their relevance to the topic at hand and the existing field of knowledge • Critically analyse and integrate appropriate secondary literature • Demonstrate apposite close reading skills (for example, reading for key concepts, assessing the logic of arguments put forward, finding the contexts of claims made, establishing the addressee of the text or arguments, summarizing and re-presenting arguments, etc.) and a working knowledge of what constitutes an explanation, of how to substantiate claims, and provide sufficient evidence in support of assertions • Make an informed choice about appropriate research methods and/or approaches for specific research questions • Demonstrate proficiency in the analysis and interpretation of qualitative and/or quantitative data, where appropriate • Show an awareness of, and ability to, articulate the ground from which the analysis proceeds and from which arguments, evidence, explanations, and logic are assessed • Make logical connections between premises and conclusions, assertions and evidence, case studies and arguments, analyses and exemplifications, cause (s) and effect(s), statements of intent and motivations, and statement of fact and interpretation • Sustain a coherent line of extended argument that engages with existing knowledge in the chosen area of study and exercise critical judgement on the information and/or explanations they offer • Use analytic skills in writing (rather than extensive description in lieu of analysis) • Write in a clear style and adhere to conventional academic practice with regards

	citations, footnotes, and referencing • Demonstrate the independent learning ability required to advance his or her knowledge and understanding as part of their on-going professional development
Module Learning Aims	The aim of the research Paper is to develop students' research and writing abilities via a substantial piece of independent work. Further, it aims for learners to demonstrate proficiency in the design of a research paper, application of appropriate research methods or approaches, collection and analysis of data and/or relevant literature, and application of area-specific theories and concepts. Students are expected to formulate their own research question (with the guidance of their supervisors and seminar leader), to gather and select material to answer their question, and set out their findings in an appropriate academic style
Module Content	The submission of a Research Paper proposal to the Module Coordinator, and attendance at a series of Research and Methodology seminars. Attendance at the Research Methods seminars is mandatory and attendance will be recorded.
Recommended Reading List	
Module Pre Requisite	
Module Co Requisite	
Assessment Details	A 12,000-word Research Paper undertaken by independent research. All Research Papers will be double-marked internally and then moderated by the External Examiner. **Additional Requirements:** The submission of a Research Paper proposal to the Module Coordinator, and attendance at a series of Research and Methodology seminars. Attendance at the Research Methods seminars is mandatory and attendance will be recorded.
Module approval date	N/A
Approved By	N/A
Academic Start Year	N/A
Academic Year of Data	1819

Marking Taught Modules – Weighting Between Streams

Some of the taught modules (e.g., CS7027) contain multiple streams (e.g., Game Studies and Design; Interactive Narrative). For each student, the Examiners produce a single mark for each module. This module mark is calculated from the marks of each of the constituent streams.

In this calculation, the streams are weighted according to the number of contact hours. For example, if Interactive Narrative has 11 contact hours out of a total of 61 on CS7027, then the mark for Interactive Narrative will be weighted 11/61 ≈ 18% while calculating the total mark for CS7027. Similarly, Legal Issues in Digital Publishing is 6 hours out of 61, so its weight is 6/61 ≈ 9.8%.

Note that each stream may have multiple coursework components that are marked individually. These components will be combined by the Lecturer for that stream in order to produce a single stream mark. Please refer to the Lecturer for the weighting of different pieces of coursework within a single stream.

CS7044 Research Paper – Important Dates

- Friday, 9 November 2018: Research Paper topic selected and Course Director notified
- Friday, 23 November 2018: Research Paper Proposal Submitted
- Friday, 7 December 2018: Proposal Decision accepted/rejected, supervisor appointed
- Friday, 10 May 2019: Research Paper submitted: One hard bound copy and two soft bound copies must be submitted. A loose one-page printed abstract and a PDF copy of the entire document must be attached to the back inside page of the bound copy

CS7044 Research Paper – Supervision

What to expect from your research paper supervisor:

- To meet with you at least 3-4 times during the process
- Give general feedback on your proposal and topic
- Give feedback on your proposed timeline/milestones
- Help scope the paper and suggest improvements in focus
- Guide you as to the most suitable structure for your paper
- Supply a few names of papers, books or authors you should read
- Later in the process, give high-level feedback on your chapters, specifically content and academic style

What NOT to expect from your research paper supervisor:

- To produce a timeline/milestone list for you
- To project-manage your research paper or remind you of your own timeline and milestone deadlines
- To produce a full reading list of specific links or references
- To read anything you write more than once
- To proof-read your chapters or correct your English
- To send you detailed written feedback by email

CS7044 Research Paper – Marking Criteria

General Criteria

- Strength of overall argument
- Relationship of answer to research question
- Coherence and internal consistency of research Paper
- Use and integration of information/sources gathered
- Level of critical awareness and analytical understanding
- Sustained and coherent argumentation
- Use and choice of examples and case studies
- Structure and organisation of argument
- Consistent development of central issues/themes
- Awareness of audience
- Adherence to accepted and proper academic convention

Specific Criteria

These relate more specifically to the achievement of individual learning outcomes; for example:

- Quality, relevance and range of literature used
- Integration of secondary sources to support argument and/or synthesis of data and explanatory ideas/concepts/theories
- Understanding of competing explanations and interpretations
- Appropriate use of research strategies and methods (this addresses 'how' the research Paper question/research was answered/undertaken)
- Sense of where the research is situated in a larger field of knowledge
- Sense of context for case studies/ideas used and careful presentation of background for inquiry
- Evaluation of complex issues systematically and creatively
- Reveals originality in the application of knowledge (originality is taken to mean work that is original to the student, and in which they demonstrate innovation and or initiative in arriving at an idea or conclusion)

- Justification and explanation of research issues specific to topic
- Adequate conclusions related to research question, data, and literature (where appropriate)
- Writing – quality, tone, style
- Correct use of citations, references and academic conventions
- Use of diagrams, illustrations where appropriate

Process Criteria

- Made contact, provided interim drafts for review, met deadlines, worked consistently
- Able to reflect on their own process and learning, grew through process of research and writing
- Made use of constructive feedback

Examples of Grade Categories

Excellent

A Research Paper falls into the excellent range (70% and up) if, for example, it:

- Scores highly in all three criteria areas
- Instances an exemplary range and depth of attainment with regards to the learning outcomes
- Is perceptive, insightful and original/innovative and/or presents a novel approach to or deep analysis of the research question
- Is comprehensive in its understanding of the topic
- Has a discriminating command of relevant materials and analyses
- Reveals a commanding ability to synthesise relevant secondary literature
- Displays sound critical examination and analytical justification of key theorists/approaches/case studies
- Is coherent, internally consistent, well organized and exceptionally argued
- Is carefully and effectively presented

Very Good

A Research Paper falls into the very good range (60-69%) if, for example, it:

- Satisfactorily meets many of the descriptors in all three evaluation criteria
- Evidences a good range of attainment with regards to the learning outcomes
- Is insightful in its approach to or analysis of a problem
- Shows an above average comprehension of the topic and a good general critical awareness of issues raised
- Has a clear command of relevant materials, analyses, and secondary literature
- Displays sound critical examination and analytical justification of key theorists/approaches/case studies
- Is coherent, internally consistent, well organized and lucidly argued
- Is carefully and effectively presented

Good/Fair

A research Paper falls into the good/fair range (50-59%) if, for example, it:

- Adequately meets a number of the descriptors in at least two of the three evaluation criteria
- Evidences a degree of competence with regards to the learning outcomes
- Is passable in its approach to a problem/research question but is more descriptive than critical/analytical
- Provides a competent rationale for the research undertaken
- Is fair in its awareness of methods of interpretation and/or argumentation
- Has a qualified familiarity with relevant materials, analyses, and secondary literature
- Displays mixed evidence with regards to critical examination and justification of key theorists/approaches/case studies
- Is less than secure in its through line and organization, and in its integration of different sections
- Presents some unsupported assertions
- Displays some discrepancies in language and academic convention usage

Poor/Fail

A Research Paper falls into the poor/fail range (0-49%) if, for example, it:

- Scores badly in all three areas of evaluation
- Displays a limited achievement of learning outcomes
- Lacks focus and scope
- Is badly structured and reveals little understanding of research design/feasibility
- Is deficient in critical respects, lacking secure basis in relevant empirical or analytical dimensions
- Presents incomplete and flawed explanations, evidence and argumentation
- Has a lack of internal consistency
- Has an inadequate presentation of the relevant literature for this level of study and relies too much on a limited range of sources
- Presents an inappropriate or limited rationale for the research approach and/or data collection methods used
- Is poorly referenced, poorly presented and uses very unclear language with serious errors

Research Project – Marking Criteria

Projects are evaluated on four overall criteria. (Excellent: 70%+; Very good: 60—69%; Good/Fair: 50—59%; Poor/Fail: under 0—49%. Note: as per regulations, a grade of 50% overall is required to pass).

Conceptual

- Excellent: Highly original, well contextualized, thoroughly engaging, Reflects creative and independent thought.
- Very Good: Concept is clear and well played out in the project, though not necessarily novel or wholly original. Some evidence that the conceptual context is understood.
- Good/Fair: Less than original, or somewhat vague, ideas; weak evidence of contextualization.
- Poor/Fail: Project lacks a discernible concept, or concept falls below the standard expected.

Aesthetic and Design

- Excellent: Compelling overall aesthetic, well thought through, inventive, novel. Demonstrates a mature understanding of design.
- Very Good: Clear and cohesive
- Good/Fair: Some inconsistencies or clichés in design; some elements underdeveloped.
- Poor/Fail: Generally inconsistent design; clear lack of attention to overall aesthetics.

Process and Professionalism

- Excellent: Consistent, steady work throughout project; good response to feedback; met project milestones and deadlines well. Good follow-through on tasks. Constructive approach to problem solving.
- Very Good: Deadlines, goals, and meetings mostly met. Good level of teamwork and problem solving. Feedback generally well incorporated.
- Good/Fair: Some problems with deadlines or teamwork but team generally productive. Feedback not always properly addressed.
- Poor/Fail: Poor or disorganized teamwork, significant communication problems. Many components late or not delivered acceptably. Lack of consistent work.

Technical

- Excellent: Project makes a successful ambitious use of technology. Coding is to a very high standard.
- Very Good: A finished project which makes good proficient use of technology. Some minor technical issues which do not interfere with the overall experience of the project.
- Good/Fair: Some technical flaws. The project fails to make sophisticated use of technology (though there is some attempt).
- Poor/Fail: Severe technical problems.

Research Project Progress Monitoring

- All groups are expected to meet regularly and remain in good contact through the entire project
- The group should maintain a single group blog which should be updated regularly (weekly, at a minimum) by each group member documenting the progress and activities.
- Groups must meet regularly with the supervisor to discuss progress on the project and receive feedback.
- Milestones and prototypes: It is recommended that each group demonstrate prototypes (or some other agreed upon form) to their supervisor at least twice during the project, during the first month and again no less than three weeks before the final completion of the project
- Attendance: Under normal circumstances all students are expected to attend each group meeting and each supervision meeting during the project.

Explanation of ECTS Weighting

The European Credit Transfer and Accumulation System (ECTS) is an academic credit system based on the estimated student workload required to achieve the objectives of a module or programme of study. It is designed to enable academic recognition for periods of study, to facilitate student mobility and credit accumulation and transfer. The ECTS is the recommended credit system for higher education in Ireland and across the European Higher Education Area.

The ECTS weighting for a module is a measure of the student input or workload required for that module, based on factors such as the number of contact hours, the number and length of written or verbally presented assessment exercises, class preparation and private study time, laboratory classes, examinations, clinical attendance, professional training placements, and so on as appropriate. There is no intrinsic relationship between the credit volume of a module and its level of difficulty.

The European norm for full- time study over one academic year is 60 credits. 1 credit represents 20-25 hours estimated student input, so a 10-credit module will be designed to require 200-250 hours of student input including class contact time, assessments and examinations.

ECTS credits are awarded to a student only upon successful completion of the programme year. Progression from one year to the next is determined by the programme regulations. Students who fail a year of their programme will not obtain credit for that year even if they have passed certain component. Exceptions to this rule are one-year and part-year visiting students, who are awarded credit for individual modules successfully completed.

Marking Scale

The programme uses the Institutional Marking Scale described in Calendar, Part II, General Regulations & Information, Section II, Item 30:

http://www.tcd.ie/calendar/undergraduate-studies/general-regulations-and-information.pdf

The marking scale is as follows:

I = 70-100 per cent (roughly equivalent to A+ and A)
II.1 = 60-69 per cent (roughly equivalent to A- and B+)
II.2 = 50-59 per cent (roughly equivalent to B and B-)
III = 40-49 per cent
F1 = 30-39 per cent
F2 = 0-29 per cent

The minimum pass mark for Masters level courses in Trinity College is 50.

Note that the marking scale differs from that used in many other places, such as North America, mainland Europe and many parts of Asia.

Individual Work and Plagiarism

It is important to highlight that all work submitted in assignments and in the examinable components must be your own, and not taken directly from the Internet or other sources, unless cited in accordance with academic standards. The regulations governing plagiarism are available here:

http://tcd-ie.libguides.com/plagiarism

All students must complete the Online Tutorial on avoiding plagiarism 'Ready, Steady, Write' located at:

http://tcd-ie.libguides.com/plagiarism/ready-steady-write

In the case of group work, groups should establish some mechanism to ensure that no member engages in plagiarism.

Note that Lecturers or the Course Director may submit any piece of submitted work to the TurnItIn plagiarism detection tool which detects any plagiarism of web material and of any other material previously submitted to TurnItIn. (See www.TurnItIn.com)

Attendance

Students are expected to attend all lectures and to attend all group work meetings.

Absence from Examinations

Please see the College Calendar, Part II, General Regulations and Information, Section II, Item 35:

http://www.tcd.ie/calendar/undergraduate-studies/general-regulations-and-information.pdf

Additional University Regulations

The full list of Academic Policies is available here:

http://www.tcd.ie/teaching-learning/academic-policies/

Details about the Student Complaints Procedure can be found here:

https://www.tcd.ie/about/policies/160722_Student%20Complaints%20Procedure_PUB.pdf

The Dignity and Respect Policy supports a respectful work and study environment free from bullying and harassment:

https://www.tcd.ie/equality/policy/dignity-respect-policy/

Feedback and Evaluation

The course is evaluated with feedback forms distributed to the students. Each taught component is evaluated separately for workload, difficulty, relevance and quality of lectures and assignments. Feedback is anonymous.

Court of Examiners

There are two meetings of the Court of Examiners each year. Usually these meetings take place at the beginning of June to assess the taught modules and Research Papers and the second meeting is at the beginning of September examining the final project leading to an MSc.

Results from the Court of Examiners are posted on the notice board in the O'Reilly Institute following the External Examiner meetings.

The Court of Examiners is comprised of lecturers on the course, the Director of Postgraduate Teaching and Learning of the School of Computer Science and Statistics, the external examiner and any adjunct lecturers or Research Paper supervisors who are not full-time lecturers assigned to the course.

The Postgraduate Advisory Service

The Postgraduate Advisory Service is a unique and confidential service available to all registered postgraduate students at Trinity College. It offers a comprehensive range of academic, pastoral, and professional supports dedicated to enhancing your student experience.

Who?

The Postgraduate Advisory Service is led by the Postgraduate Support Officer who provides frontline support for all Postgraduate students in Trinity. The Postgrad Support Officer will act as your first point of contact and a source of support and guidance regardless of what stage of your Postgrad you're at. In addition, each Faculty has three members of Academic staff appointed as Postgraduate Advisors who you can be referred to by the Postgrad Support Officer for extra assistance if needed.

Contact details of the Postgrad Support Officer and the Advisory Panel are available on our website:

https://www.tcd.ie/Senior_Tutor/postgraduateadvisory/

Where?

The PAS is located on the second floor of House 27 and is open from 8.30 – 4.30, Monday to Friday. Appointments are available from 9am to 4pm.

Phone: (01) 896 1417

Email: pgsupp@tcd.ie

What?

The PAS exists to ensure that all Postgrad students have a contact point who they can turn to for support and information on college services and academic issues arising. Representation assistance to Postgrad students is offered in the area of discipline and/ or academic appeals arising out of examinations or thesis submissions, supervisory issues, general information on Postgrad student life and many others. If in doubt, get in touch! All queries will be treated with confidentiality. For more information on what we offer see our website.

If you have any queries regarding your experiences as a Postgraduate Student in Trinity don't hesitate to get in touch.

Staff

Course Director

Dr Mads Haahr (Mads.Haahr@scss.tcd.ie) Tel: 896 1540

Office: Centre for Creative Technologies, Office 02-013, https://goo.gl/maps/AKCZz3m1sKN2

Course Administration

Margaret Murray (Margaret.Murray@scss.tcd.ie) Tel: 896 2418

Main Office of the School of Computer Science and Statistics Tel: 896 1765

Director of Teaching and Learning Postgraduate (Taught Programmes)

Dr John Dingliana (DINGLIJL@tcd.ie) Tel: 896 3680

External Examiner

Prof. Richard Smith, Director of the Master of Digital Media, Centre for Digital Media, Canada

Lecturers

The e-mail addresses for the lecturers associated with the course are:

Nina Bresnihan	Nina.Bresnihan@scss.tcd.ie
Kathryn Cassidy	kcassidy@tchpc.tcd.ie
Jack Cawley	jack.cawley@gmail.com
John Dingliana	john.dingliana@scss.tcd.ie
Robin Fuller	rofuller@tcd.ie
Mads Haahr	mads.haahr@tcd.ie
Anna Ní Uiginn	Anna.NiUiginn@williamfry.com
Tom Burke	broadstonefilms@gmail.com
Niall O'Hara	niohara@scss.tcd.ie
Vivienne O'Kelly	vaokelly@hotmail.com
Kerstin Ruhland	ruhlandk@tcd.ie
Cormact Stewart	Cormac.Stewart@williamfry.com
Glenn Strong	glenn.strong@scss.tcd.ie
Alex Towers	Alex.Towers@williamfry.com

Research Paper Supervisors

Research Paper supervisors are drawn from the academic staff at the School of Computer Science and Statistics and external experts.

Computer Facilities

The Information System Services (ISS) department looks after the computer facilities in the college for all schools except computer science and statistics. ISS also look after your connection from home:

http://isservices.tcd.ie/

Usernames and Passwords

When you register in college you are given a username and password. This has been allocated to you by ISS. The School of Computer Science and Statistics gets a copy of these details and sets up an account for you. This account will have the same username and password that was given to you at registration.

Labs

Once you have your computer science account you can use the computers in the School of Computer Science and Statistics. You will also be able to use any non computer science computers. Labs that are non-computer science are known as Public Access Labs.

To take a look at the Public Access Labs available in college go to:

http://isservices.tcd.ie/facilities/map.php

To take a look at details of the computer science labs go to:

https://support.scss.tcd.ie/Student_labs

Email

Note that you will have two email accounts, one provided by ISS (username@tcd.ie) and one by the School of Computer Science and Statistics (username@scss.tcd.ie). Messages sent to the CS account will be forwarded automatically to the @tcd account which you will access via myzone, a service provided by Google. See the following for details:

http://www.tcd.ie/itservices/email/myzone.php

You are expected to read College email messages regularly, ideally daily.

Programming Support Centre

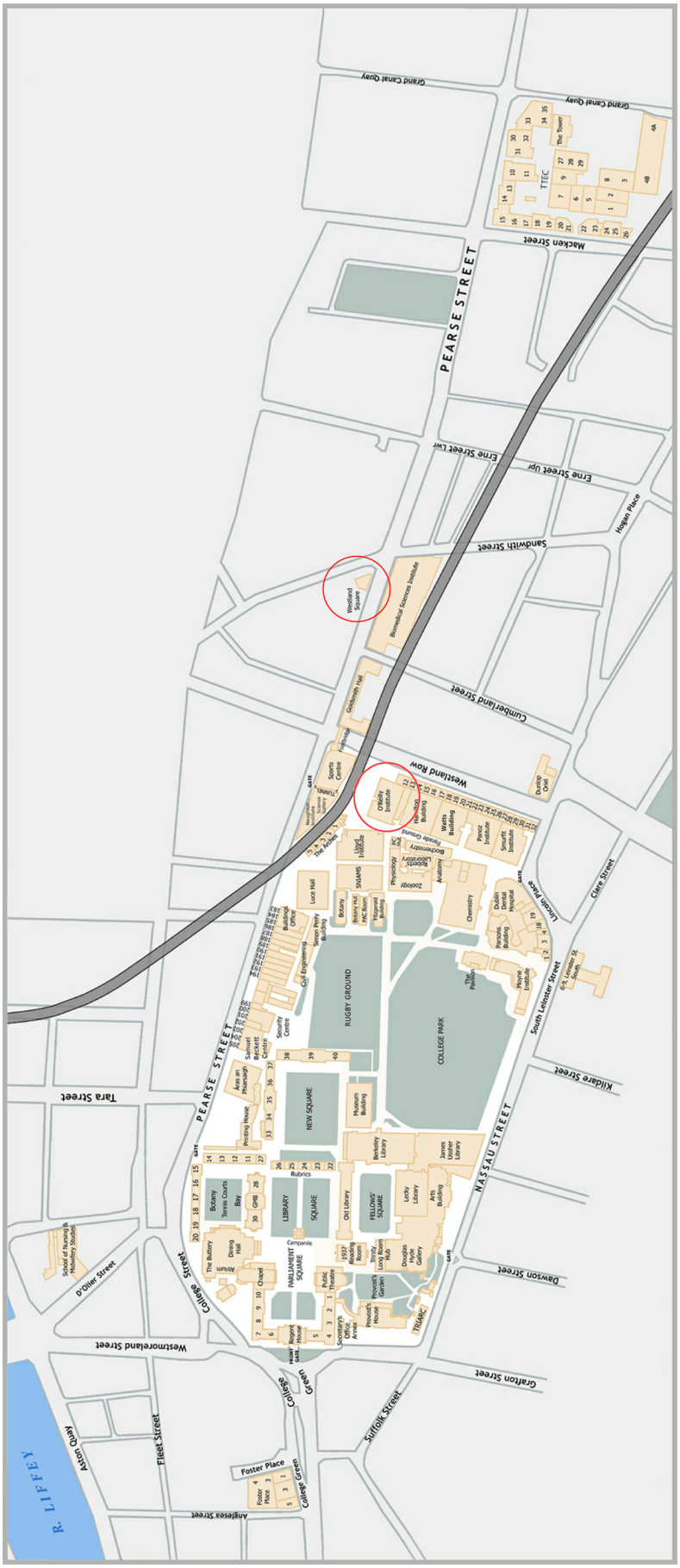
The School of Computer Science and Statistics runs a programming support centre where friendly Computer Science postgrads can help with general programming questions. (They won't answer specific questions on coursework, though.) More info here:

https://www.scss.tcd.ie/misc/psc/

Appendix 1: TCD Web Links

There are many useful sites in TCD. Here are a number of them. If you find any other TCD links that you think would be useful for the class, please email the Course Director.

Site	Address
TCD Website	http://www.tcd.ie
Library	http://www.tcd.ie/Library/
Information System Services	http://www.tcd.ie/itservices/
Graduate Studies	https://www.tcd.ie/Graduate_Studies/
Student Counselling	http://www.tcd.ie/Student_Counselling/
Computer Science and Statistics	http://www.scss.tcd.ie
TCD Staff Peoplefinder	http://peoplefinder.tcd.ie



Appendix 2: Maps

Maps can be found online here:

http://www.tcd.ie/maps

Use the a-z search to find specific buildings.

On the adjacent map, the Westland Square lecture room and the O'Reilly building are marked with circles.

Appendix 3: Outline Table of Contents for Research Paper

This outline is a guide and considerable variation is likely depending on the nature of the research undertaken. For examples of prior research papers, please see the following:

https://www.scss.tcd.ie/publications/theses/diss/dissertation-index.idm.php

Chapter 1: Introduction

This should be a short account of why you undertook the research, what the general state of knowledge was at the time you started, why you asked the questions that your research was expected to answer. It should state your research question and briefly introduce the research undertaken. A brief reader's guide to the research Paper should be included.

Chapter 2: State-of-the-Art

It is essential that this should be a critical review in which the various papers are compared and in which you express your own opinion of the conclusions that may be drawn and to do your best to reconcile discrepant results in favour of one or other set. Provide a summary at the end of the sections or of the whole review. Remember that the content of this chapter must be relevant to the actual research carried out; it is not a "brain dump" of everything you have read. You must demonstrate analysis and synthesis of the literature.

Chapter 3: Design/Methodology

The general structure of the study should be described clearly. The comparisons that are going to be made, the controls and technical details etc. should be included if appropriate. Where software has been developed, this chapter might report on the design of the system.

Chapter 4: Implementation/Results

Depending on the nature of the project, this chapter will describe the actual work carried out e.g. any experiments undertaken or system implementation.

Chapter 5: Evaluation/Analysis

In this chapter discuss your results in the light of what is already supposed to be known, show how they confirm or refute previous work, and state what you think is new in your own. Do not use this section for another review of the literature.

Chapter 6: Conclusions and Future Work

This should be a short account of the results of your work, emphasising mainly what is new. There should be a close correlation between this chapter and chapter 1, in which you described the problem you were addressing. It is advisable to deal with the limitations of your research at this stage and to suggest here what further work might be done. This is the appropriate place to do a self-assessment of your research.

References

References should be consistently cited in the text. The references in the Reference List at the back of the research Paper should be listed in the same way as they are cited in the text. They should also be complete so that the reader wanting to locate a particular reference has all the information necessary to do so (including page numbers!).

It is increasingly common to cite references to the World Wide Web. For Web references please give the URL and a date on which the site was accessed. Where an article has been published on the Web and in print, use the print reference in preference.

Appendices

These should contain supplementary material which is not necessary in order for the reader to follow the argument. For example, the text of a questionnaire should be placed in an Appendix. It is not considered necessary to include the source file for the document, but you may do so by inserting a disc or CD in a pocket at the back of the Research Paper.

Appendix 4: Research Paper Proposal Form

Please describe the research topic on which you propose to work under the following headings:

Student Name:

Project Title (include both the deeper question of your research and the specific focus of your work):

Project Summary:

Your own expertise and how well you are positioned to carry out this work:

Prior work (if your project is to be a continuation of a previous project, summarise the results of that project and say how your work will build on those results):

Connections to funded/collaborative projects (will your project be connected to on-going research, e.g., commissioned by a funding body? If so please outline the larger study, those involved in the work and your expected contributed).

Research Aims:

Potential benefits of the study for the field:

Background (Identify initial sources for background literature in terms of specific books and papers, and journals/conferences/web sites likely to contain material):

Proposed methodology/implementation approach:

Evaluation criteria (How will the results of your work be evaluated?):

Publication plan (what journals/conferences should be targeted or what organisations should be informed of your work?):

Workplan (including work deliverables and dates for identified project stages):

Appendix 5: Marking Sheet for Research Paper (Supervisor's Form)

MSc in Interactive Digital Media

May 2019

Student Name:		
Student Number:		
Research Paper Title:		
Supervisor (Block Caps):		**Second Reader (Block Caps):**
Signature:		

Please see the attached Evaluation Categories and Descriptors as well as Research Paper Aim and Learning Outcomes

General Criteria (40/100)	**Comments:**	**Mark:** **Final: ___/40**

Process Criteria (20/100)	**Comments:**	**Mark:** **Final: ___/20**

Specific Criteria (40/100)	**Comments:**	**Mark:** **Final: ___/40**

General Criteria	
Process Criteria	
Specific Criteria	
Final Mark	**____ / 100**

Please feel free to make any comments on the Research Paper which might help to develop and maintain the objectives and learning outcomes for this component of the course.

Appendix 6: Marking Sheet for Research Paper (Second Reader's Form)

MSc in Interactive Digital Media

May 2019

Student Name:		
Student Number:		
Research Paper Title:		
Supervisor (Block Caps):		**Second Reader (Block Caps):** **Signature:**

Please see the attached Evaluation Categories and Descriptors as well as Research Paper Aim and Learning Outcomes

General Criteria (50/100)	**Comments:**	**Mark:** **Final: ___/50**

Specific Criteria (50/100)	**Comments:**	**Mark:** **Final: ___/50**

General Criteria	
Specific Criteria	
Final Mark	**____ / 100**

Please feel free to make any comments on the Research Paper which might help to develop and maintain the objectives and learning outcomes for this component of the course.

Appendix 7: Submission of Research Paper

This appendix describes the process to follow when submitting your Research Paper. Research Papers and Abstracts must also be submitted electronically, each as a single pdf, through the School's new dissertation submission web page.

The Research Paper submission process is as follows:

Step 1: Print off two copies of your Research Paper and send one to the binder. The second copy should be soft bound for review and marking by the first and second readers.

Step 2: Print off a single copy of the abstract to your Research Paper (including its title and your name).

Step 3: Submission of Dissertation and Abstract in PDF format. Students should use the link below to upload (dissertations) research papers:

https://www.scss.tcd.ie/publications/theses/diss

Please note, to use the new research paper submission form, you will need the password of your computer account on School of Computer Science and Statistics (SCSS) machines, which is not necessarily the same password you use for college computer services provided by IS Services. To check if you know your SCSS password, try to access the following:

https://www.scss.tcd.ie/Local

If you cannot access this webpage, you will need to send an email to help@scss.tcd.ie from your TCD email account to request a new SCSS password.

Upload your dissertation as a single PDF file. Upload the abstract of your Research Paper as a single A4 page in PDF format. The Abstract page should include:

1. Your name
2. Full title of your degree
3. Title of your dissertation
4. Name of your supervisor
5. Year
6. Text of abstract of your dissertation

When you have successfully submitted your dissertation and abstract pdfs, an email receipt will be sent to you and the course administrator.

Step 4: Collect your bound Research Papers from the binder.

Step 5: Sign the declarations in two copies of your Research Paper.

Step 6: Hand the two signed copies of your Research Paper and the copy of your abstract to

Jean at the Reception Desk in the School of Computer Science and Statistics, O'Reilly Institute, on or before 4.00 pm on Friday, 10 May 2019.

If you have successfully completed the previous steps (esp. 5) your Research Paper will be accepted, otherwise not.

Additional notes:

- Please use the form of words given in appendix 12 of this document for the title page and declarations in your Research Paper.
- Binding takes time.
- In previous years, MSc classes have negotiated a bulk deal with a binder saving money and time (by arranging to deliver and collect the Research Papers to/from the binder together and having them bound in a shorter period of time).
- Do not leave your Research Paper in Margaret's mail box (or her delegate's) or with anyone else as various checks are necessary before the Research Paper is accepted.

And the bottom line:
The deadline is absolute. If you miss the deadline you will not be eligible for the award of an MSc.

Appendix 8: Regulations for Candidates on Submission of an MSc Research Paper

This document summarises the College's regulations and guidelines concerning the submission of Research Papers and outlines some requirements that are specific to the MSc in Computer Science. Candidates may want to consult the College's regulations independently.

1. **Methods of production**
   Use a computer/word processor and print your manuscript using a laser or inkjet printer. Colour may be used in photographs, figures, graphs, etc.

2. **Typescript and illustrations**
   The Research Paper must be printed on good quality, white A4 paper. The type must be black and not less than 10 point. Use one and a half or double spacing between lines and print on one side of the page only. The margin on the left-hand side of the page should be at least 2.54 cm to allow for binding.

3. **Pagination**
   Pages should be numbered consecutively through the research Paper starting with the first page following the table of contents and including appendices but excluding photographs and/or diagrams which are not embodied in the text. The page numbers should be located centrally at the bottom of the page.

4. **Length**
   The Research Paper should be approximately 12,000 words (i.e., **no more than 40 pages** in total including all appendices assuming 12 point text with one and a half spacing).

5. **Cover**
   The Research Paper must be bound in **hard** covers with dark blue cloth.

6. **Title**
   The title must appear in gold lettering on the front cover of the Research Paper. The degree for which the Research Paper has been submitted (M.Sc. Interactive Digital Media), the year, and the name of the candidate, in that order, should be lettered in gold, in 24pt or larger type, down the spine, so as to be readable when the volume is lying flat with the front cover uppermost.

7. **Title page**
   Include a title page giving the following information in the order listed:

- the full title of the research Paper (as on the front cover) and the subtitle if any (ensure that the title describes the content of the research Paper accurately and concisely),
- the full name of the author,
- the qualification for which the research Paper is submitted (i.e., M.Sc. in Interactive Digital Media),
- the name of the institution to which the research Paper is submitted (i.e., University of Dublin),
- the year of submission (e.g., 2018)

An example title page is included as an appendix to this document.

8. **Declaration**

The Research Paper **must** contain immediately after the title page:

- a declaration that it has not been submitted as an exercise for a degree at this or any other University,
- a declaration that it is entirely the candidate's own work (in the case of a research Paper for which the work has been carried out jointly, there must be a statement that it includes the unpublished and/or published work of others, duly acknowledged in the text wherever included) and
- a signed statement that the candidate agrees that the Library may lend or copy the research Paper upon request.

Example declarations are included as an appendix to this document.

9. **Acknowledgments**

Any acknowledgments should be on the page following the declaration.

10. **Summary**

A summary of the Research Paper, outlining methods used and major findings should be approximately three hundred words and should follow the declarations and acknowledgments.

11. **Table of Contents**

A table of contents should immediately follow the acknowledgements. It should list in sequence, with page numbers, all relevant subdivisions of the research Paper, including the list of abbreviations, titles of chapters and their sections and subsections; the list of references; the bibliography etc.

12. **Tables and Illustrative Material**

    Lists of tables and illustrations should follow the table of contents. All tables, photographs, diagrams etc., in the order in which they occur in the text, should be so listed.

13. **Abbreviations**

    Where abbreviations are used, a key should be provided on a separate page.

14. **References**

    Systematic and complete reference to sources used and a classified list of all sources used must be included in the research Paper. The titles of journals preferably should not be abbreviated; if they are, abbreviations must comply with an internationally recognised system.

    Ensure that citations and the corresponding references are formatted consistently.

    Avoid citations to transient electronic sources (e.g., web pages) whenever possible. A citation to a web page should be used only where there is no alternative and where it can be guaranteed that the page in question will continue to be accessible in the future.

15. **Submission**

    One hardbound copy, and one soft bound copy of the Research Paper must be submitted (personally) to ***the Course Director no later than the advertised deadline for submission of research Papers.*** You will probably want an additional copy for yourself and may also want to give a copy to your supervisor.

    One copy of an **abstract**, printed on a single sheet of A4 paper, must be submitted loose with ***each*** copy of the research Paper. The abstract must contain the title of the research Paper and the author's full name as a heading and may be single-spaced.

    In addition, you should provide an **electronic copy** of the complete research Paper as a single PDF file and a copy of your abstract. One copy of an abstract, printed on a single sheet of A4 paper, must be submitted loose with each copy of the research paper. The abstract must contain the title of the dissertation and the author's full name as a heading and may be single-spaced. The abstract can be the same as the summary.

Appendix 9. College Calendar Entry on Plagiarism

PLAGIARISM EXCERPT FROM TCD CALENDAR 2018-19, PART III, SECTION I, Page 23
https://www.tcd.ie/calendar/graduate-studies-higher-degrees/complete-part-III-hl.pdf#page=23

GENERAL

It is clearly understood that all members of the academic community use and build on the work and ideas of others. It is commonly accepted also, however, that we build on the work and ideas of others in an open and explicit manner, and with due acknowledgement.

Plagiarism is the act of presenting the work or ideas of others as one's own, without due acknowledgement.

Plagiarism can arise from deliberate actions and also through careless thinking and/or methodology. The offence lies not in the attitude or intention of the perpetrator, but in the action and in its consequences.

It is the responsibility of the author of any work to ensure that he/she does not commit plagiarism. Plagiarism is considered to be academically fraudulent, and an offence against academic integrity that is subject to the disciplinary procedures of the University.

EXAMPLES OF PLAGIARISM

Plagiarism can arise from actions such as:

a) copying another student's work;

b) enlisting another person or persons to complete an assignment on the student's behalf;

c) procuring, whether with payment or otherwise, the work or ideas of another;

d) quoting directly, without acknowledgement, from books, articles or other sources, either in printed, recorded or electronic format, including websites and social media;

e) paraphrasing, without acknowledgement, the writings of other authors.

f) Examples (d) and (e) in particular can arise through careless thinking and/or methodology where students:

(i) fail to distinguish between their own ideas and those of others;

(ii) fail to take proper notes during preliminary research and therefore lose track of the sources from which the notes were drawn;

(iii) fail to distinguish between information which needs no acknowledgement because it is firmly in the public domain, and information which might be widely known, but which nevertheless requires some sort of acknowledgement;

(iv) come across a distinctive methodology or idea and fail to record its source

All the above serve only as examples and are not exhaustive.

PLAGIARISM IN THE CONTEXT OF GROUP WORK

Students should normally submit work done in co-operation with other students only when it is done with the full knowledge and permission of the lecturer concerned. Without this, submitting work which is the product of collaboration with other students may be considered to be plagiarism.

When work is submitted as the result of a group project, it is the responsibility of all students in the group to ensure, so far as is possible, that no work submitted by the group is plagiarised. In order to avoid plagiarism in the context of collaboration and groupwork, it is particularly important to ensure that each student appropriately attributes work that is not their own.

SELF PLAGIARISM

No work can normally be submitted for more than one assessment for credit. Resubmitting the same work for more than one assessment for credit is normally considered self-plagiarism.

AVOIDING PLAGIARISM

Students should ensure the integrity of their work by seeking advice from their lecturers, tutor or supervisor on avoiding plagiarism. All schools and departments must include, in their handbooks or other literature given to students, guidelines on the appropriate methodology for the kind of work that students will be expected to undertake. In addition, a general set of guidelines for students on avoiding plagiarism is available at http://tcd-ie.libguides.com/plagiarism

If plagiarism as referred to above is suspected, the Director of Teaching and Learning (Postgraduate) or his/her designate will arrange an informal meeting with the student, the student's Supervisor and/or the academic staff member concerned, to put their suspicions to the student and give the student the opportunity to respond. Students may nominate a Graduate Students' Union representative or PG advisor to accompany them to the meeting. The student will be requested to respond in writing stating his/her agreement to attend such a meeting and confirming on which of the suggested dates and times it will be possible for them to attend. If the student does not in this manner agree to attend such a meeting, the Director of Teaching and Learning (Postgraduate), or designate, may refer the case directly to the Junior Dean, who will interview the student and may implement the procedures as referred to in Section 5 of the Calendar (Other General Regulations).

If the Director of Teaching and Learning (Postgraduate) forms the view that plagiarism has taken place, he/she must decide if the offence can be dealt with under the summary procedure set out below. In order for this summary procedure to be followed, all parties noted above must be in agreement and must state their agreement in writing to the Director of Teaching and Learning (Postgraduate) or designate. If one of the parties to the informal meeting withholds his/her written agreement to the application of the summary procedure, or if the facts of the case are in dispute, or if the Director of Teaching and Learning (Postgraduate) feels that the penalties provided for under the summary procedure below are inappropriate given the circumstances of the case, he/she will refer the case directly to the Junior Dean, who will interview the student and may implement the procedures set out in Section 5 of the Calendar (Other General Regulations).

If the offence can be dealt with under the summary procedure, the Director of Teaching and Learning (Postgraduate) will recommend one of the following penalties:

(a) Level 1: Student receives an informal verbal warning. The piece of work in question is inadmissible. The student is required to rephrase and correctly reference all plagiarised elements. Other content should not be altered. The resubmitted work will be assessed and marked without penalty;

(b) Level 2: Student receives a formal written warning. The piece of work in question is inadmissible. The student is required to rephrase and correctly reference all plagiarised elements. Other content should not be altered. The resubmitted work will receive a reduced or capped mark depending on the seriousness/extent of plagiarism;

(c) Level 3: Student receives a formal written warning. The piece of work in question is inadmissible. There is no opportunity for resubmission.

Provided that the appropriate procedure has been followed and all parties are in agreement with the proposed penalty, the Director of Teaching and Learning (Postgraduate) should in the case of a Level 1 offence, inform the Course Director and, where appropriate, the Course Office. In the case of a Level 2 or Level 3 offence, the Dean of Graduate Studies must be notified and requested to approve the recommended penalty. The Dean of Graduate Studies may approve or reject the recommended penalty, or seek further information before making a decision. If he/she considers that the penalties provided for under the summary procedure are inappropriate given the circumstances of the case, he/she may also refer the matter directly to the Junior Dean who will interview the student and may implement the procedures as referred to under conduct and college. Notwithstanding his/her decision, the Dean of Graduate Studies will inform the Junior Dean of all notified cases of Level 2 and Level 3 offences accordingly. The Junior Dean may nevertheless implement the procedures as set out in Section 5 of the University Calendar (Other General Regulations).

If the case cannot normally be dealt with under summary procedures, it is deemed to be a Level 4 offence and will be referred directly to the Junior Dean. Nothing provided for under the summary procedure diminishes or prejudices the disciplinary powers of the Junior Dean under the 2010 Consolidated Statutes.

Appendix 10. Author Declaration for Group Assignments

Assignment Number: _____

Module Number: _____

Title of Assignment:

Word Count: _____

Student Number	Student Name	Nature of Contribution	Percentage contribution

We have read and we understand the plagiarism provisions in the General Regulations of the University Calendar for the current year, found at: http://www.tcd.ie/calendar

We have also completed the Online Tutorial on avoiding plagiarism 'Ready, Steady, Write', located at http://tcd-ie.libguides.com/plagiarism/ready-steady-write

We declare that this assignment, together with any supporting artefact is offered for assessment as our original and unaided work, except in so far as any advice and/or assistance from any other named person in preparing it and any reference material used are duly and appropriately acknowledged.

We declare that the percentage contribution by each member as stated above has been agreed by all members of the group, and reflects the actual contribution of the group members.

Signed and dated:

_____ _____

_____ _____

_____ _____

Appendix 11. Assessment Submission Form

Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin

School of Computer Science and Statistics

Assessment Submission Form

Student Name	
Student ID Number	
Course Title	
Module Title	
Lecturer(s)	
Assessment Title	
Date Submitted	
Word Count	

I have read and I understand the plagiarism provisions in the General Regulations of the University Calendar for the current year, found at: http://www.tcd.ie/calendar

I have also completed the Online Tutorial on avoiding plagiarism 'Ready, Steady, Write', located at http://tcd-ie.libguides.com/plagiarism/ready-steady-write

I declare that the assignment being submitted represents my own work and has not been taken from the work of others save where appropriately referenced in the body of the assignment.

Signed …… Date ……

Appendix 12. Research Ethics

Any research project that involves human participation conducted through this course (for example, a questionnaire or survey, or system user-evaluation, etc.) must have independent review by a Research Ethics Committee before its commencement.

A basic principle is that prospective participants should be fully informed about the research and its implications for them as participants, with time to react on the possibility for participation prior to being asked to sign an informed consent form. The online system, with further information and guidelines, can be found here:

http://www.scss.tcd.ie/undergraduate/ethics/

It takes time to prepare an application for research ethics approval, to have the application considered, and to respond to feedback on the application where issues are raised. You should plan in your work for the time it takes to obtain research ethics approval.

If this is your first time to apply for ethical approval it is suggested that you should prepare your application and then make a special appointment with your supervisor to go through the ethical application.

As your supervisor will have had previous experience in preparing applications, and has to sign the application, this should hasten the process, and reduce or eliminate any amendments required.

Retrospective approval will not be granted.

Please also note, research conducted in the School of Computer Science and Statistics should be undertaken with cognisance of the TCD Guidelines for Good Research Practice; see

http://www.tcd.ie/about/policies/assets/pdf/TCDGoodResearchPractice.pdf

Appendix 13. Title and Declaration Page Examples

<Title of the research Paper>

<Your name in full>

A research Paper submitted to the University of Dublin,

in partial fulfilment of the requirements for the degree of

Master of Science Interactive Digital Media

<Year of submission>

Declaration

I have read and I understand the plagiarism provisions in the General Regulations of the University Calendar for the current year, found at: http://www.tcd.ie/calendar

I have also completed the Online Tutorial on avoiding plagiarism 'Ready, Steady, Write', located at http://tcd-ie.libguides.com/plagiarism/ready-steady-write

I declare that the work described in this research Paper is, except where otherwise stated, entirely my own work and has not been submitted as an exercise for a degree at this or any other university.

Signed: _____

<Your name in full>

<Date>

Permission to lend and/or copy

I agree that Trinity College Library may lend or copy this research Paper upon request.

Signed: _____

<Your name in full>

<Date>

Appendix 14. Academic Calendar 2018-2019

Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin

ACADEMIC YEAR CALENDAR 2018/19

Cal. Wk.	Dates 2018/19 (week beginning)	2018/19 Academic Year Calendar	Term / Semester
1	27-Aug-18	Marking/Results	←Michaelmas Term begins/Semester 1 begins
2	03-Sep-18	**Orientation (undergraduate)/Freshers' Week**	
3	10-Sep-18	Teaching and Learning	←Michaelmas teaching term begins
4	17-Sep-18	Teaching and Learning	
5	24-Sep-18	Teaching and Learning	
6	01-Oct-18	Teaching and Learning	
7	08-Oct-18	Teaching and Learning	
8	15-Oct-18	Teaching and Learning	
9	22-Oct-18	Study/Review	
10	29-Oct-18	Teaching and Learning	
11	05-Nov-18	Teaching and Learning	
12	12-Nov-18	Teaching and Learning	
13	19-Nov-18	Teaching and Learning	
14	26-Nov-18	Teaching and Learning	
15	03-Dec-18	**Revision**	
16	10-Dec-18	**Assessment**	←Michaelmas term ends Sunday 16 December 2018/ Semester 1 ends
17	17-Dec-18	Christmas Period - College closed 24 December 2018 to 1 January 2019 inclusive	
18	24-Dec-18		
19	31-Dec-18		
20	07-Jan-19	**Foundation Scholarship Examinations^**	
21	14-Jan-19	Marking/Results	←Hilary Term begins/Semester 2 begins
22	21-Jan-19	Teaching and Learning	←Hilary teaching term begins
23	28-Jan-19	Teaching and Learning	
24	04-Feb-19	Teaching and Learning	
25	11-Feb-19	Teaching and Learning	
26	18-Feb-19	Teaching and Learning	
27	25-Feb-19	Teaching and Learning	
28	04-Mar-19	Study/Review	
29	11-Mar-19	Teaching and Learning	
30	18-Mar-19	Teaching and Learning (Monday, Public Holiday)	
31	25-Mar-19	Teaching and Learning	
32	01-Apr-19	Teaching and Learning	
33	08-Apr-19	Teaching and Learning	
34	15-Apr-19	**Revision (Friday, Good Friday)**	←Hilary Term ends Sunday 21 April 2019
35	22-Apr-19	**Assessment (Monday, Easter Monday)**	←Trinity Term begins
36	29-Apr-19	**Trinity Week**	
37	06-May-19	Marking/Results (Monday, Public Holiday)	
38	13-May-19	Marking/Results	
39	20-May-19	Marking/Results	
40	27-May-19	Summer Research	←Statutory (Trinity) Term ends Sunday 2 June 2019/ Semester 2 ends
41	03-Jun-19	Summer Research (Monday, Public Holiday)	
42	10-Jun-19	Summer Research	
43	17-Jun-19	Summer Research	
44	24-Jun-19	Summer Research	
45	01-Jul-19	Summer Research	
46	08-Jul-19	Summer Research	
47	15-Jul-19	Summer Research	
48	22-Jul-19	Summer Research	
49	29-Jul-19	Summer Research	
50	05-Aug-19	Summer Research (Monday, Public Holiday)	
51	12-Aug-19	Summer Research	
52	19-Aug-19	Summer Research	

^ Note: it may be necessary to hold some exams in the preceding week.

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Appendix 15. Timetable for Semesters 1 and 2

MSc Interactive Digital Media – Timetable

Semester 1: Monday, 10 September – Friday, 30 November 2018

Study Week (no lectures): Monday, 22 October – Friday, 26 October 2018

All lectures will be held in Westland Square, Third Floor lecture room, except when otherwise indicated.

Mon	10am-11am	Nina Bresnihan	CS7026 – Authoring for Digital Media 1 (Introduction to Web Authoring)
	11am-12pm	Nina Bresnihan	CS7026 – Authoring for Digital Media 1 (Introduction to Web Authoring)
	12pm-1pm	Vivienne O'Kelly	CS7027 – Contextual Media 1 (Cultural and Critical Studies)
Tue	10am-11am	Kathryn Cassidy	CS7025 – Programming for Digital Media 1
	11am-12pm	Kathryn Cassidy	CS7025 – Programming for Digital Media 1
	12pm-1pm	John Dingliana Kerstin Ruhland	CS7029 – Visual Computing and Design 1 (Visual Computing)
Wed	10am-11am	Vivienne O'Kelly Alex Towers, Anna Ní Uiginn, Cormac Stewart	CS7027 – Contextual Media 1 (Weeks 1-9: Cultural and Critical Studies) (Weeks 10-12: Legal Issues for Digital Publishing)
	11am-12pm	Vivienne O'Kelly Alex Towers, Anna Ní Uiginn, Cormac Stewart	CS7027 – Contextual Media 1 (Weeks 1-9: Cultural and Critical Studies) (Weeks 10-12: Legal Issues for Digital Publishing)
	12pm-1pm	Vivienne O'Kelly	CS7028 – Audio, Video & Sensor Technologies 1 (Moving Image for Digital Media Applications)
Thu	10am-11am	Jack Cawley	CS7028 – Audio, Video & Sensor Technologies 1 (Audio Technologies)
	11am-12pm	Jack Cawley	CS7028 – Audio, Video & Sensor Technologies 1 (Audio Technologies)
	12pm-1pm	Nina Bresnihan	CS7026 – Authoring for Digital Media 1 (Introduction to Web Authoring)
Fri	10am-11am	Robin Fuller	CS7029 – Visual Computing and Design 1 (Graphic Design)
	11am-12pm	Robin Fuller	CS7029 – Visual Computing and Design 1 (Graphic Design)
	12pm-1pm	Kathryn Cassidy	CS7025 – Programming for Digital Media 1

MSc Interactive Digital Media – Timetable

Semester 2: Monday, 21 January – Friday, 12 April 2019

Study Week (no lectures): Monday, 4 March – Friday, 8 March 2019

All lectures will be held in Westland Square, Third Floor lecture room, except when otherwise indicated.

Mon	10am-11am	Nina Bresnihan	CS7026 – Authoring for Digital Media 2 (Web Design and Development)
	11am-12pm	Nina Bresnihan	CS7026 – Authoring for Digital Media 2 (Web Design and Development)
	12pm-1pm	Nina Bresnihan	CS7026 – Authoring for Digital Media 2 (Web Design and Development)
Tue	10am-11am	Kerstin Ruhland	CS7029 – Visual Computing and Design 2 (Image Processing and 3D Modelling)
	11am-12pm	Kerstin Ruhland	CS7029 – Visual Computing and Design 2 (Image Processing and 3D Modelling)
	12pm-1pm	Mads Haahr	CS7027 Contextual Media 2 (Interactive Narrative)
Wed	10am-11am	Mads Haahr	CS7027 Contextual Media 2 (Game Studies and Design)
	11am-12pm	Mads Haahr	CS7027 Contextual Media 2 (Game Studies and Design)
	12pm-1pm	Kathryn Cassidy	CS7025 – Programming for Digital Media 2
Thu	10am-11am	Kathryn Cassidy	CS7025 – Programming for Digital Media 2
	11am-12pm	Kathryn Cassidy	CS7025 – Programming for Digital Media 2
	12pm-1pm	Niall O'Hara	CS7028 – Audio, Video and Sensor Technologies 2 (Introduction to Sensor Technologies)
Fri	10am-11am	Tom Burke	CS7028 – Audio, Video and Sensor Technologies 2 (Moving Image for Digital Media Applications)
	11am-12pm	Tom Burke	CS7028 – Audio, Video and Sensor Technologies 2 (Moving Image for Digital Media Applications)
	12pm-1pm	Kerstin Ruhland	CS7029 – Visual Computing and Design 2 (Image Processing and 3D Modelling)