Swansea University
Prifysgol Abertawe

# FACULTY OF SCIENCE AND ENGINEERING

## STUDENT HANDBOOK

# MSc VIRTUAL REALITY (FHEQ Level 7)

## SUBJECT SPECIFIC
## (PART TWO OF TWO)
## *MODULE AND COURSE STRUCTURE*
## 2022/23

## DISCLAIMER

The Faculty of Science and Engineering has made all reasonable efforts to ensure that the information contained within this publication is accurate and up-to-date when published but can accept no responsibility for any errors or omissions.

The Faculty of Science and Engineering reserves the right to revise, alter or discontinue degree programmes or modules and to amend regulations and procedures at any time, but every effort will be made to notify interested parties.

It should be noted that not every module listed in this handbook may be available every year, and changes may be made to the details of the modules. You are advised to contact the Faculty of Science and Engineering directly if you require further information.

**The 22-23 academic year begins on 19 September 2022**

Full term dates can be found here

**DATES OF 22-23 TERMS**

19 September 2022 – 16 December 2022

9 January 2023 – 31 March 2023

24 April 2023 – 09 June 2023

**SEMESTER 1**

19 September 2022 – 27 January 2023

**SEMESTER 2**

30 January 2023 – 09 June 2023

**SUMMER**

12 June 2023 – 22 September 2023

## IMPORTANT

Swansea University and the Faculty of Science of Engineering takes any form of **academic misconduct** very seriously. In order to maintain academic integrity and ensure that the quality of an Award from Swansea University is not diminished, it is important to ensure that all students are judged on their ability. No student should have an unfair advantage over another as a result of academic misconduct - whether this is in the form of **Plagiarism**, **Collusion** or **Commissioning**.

It is important that you are aware of the **guidelines** governing Academic Misconduct within the University/Faculty of Science and Engineering and the possible implications. The Faculty of Science and Engineering will not take intent into consideration and in relation to an allegation of academic misconduct - there can be no defence that the offence was committed unintentionally or accidentally.

Please ensure that you read the University webpages covering the topic – procedural guidance here and further information here. You should also read the Faculty Part One handbook fully, in particular the pages that concern Academic Misconduct/Academic Integrity. You should also refer to the Faculty of Science and Engineering proof-reading policy and this can be found on the Community HUB on Canvas, under Course Documents.

**Welcome to the Faculty of Science and Engineering!**

Whether you are a new or a returning student, we could not be happier to be on this journey with you.

This has been a challenging period for everyone. The COVID-19 pandemic has prompted a huge change in society as well as how we deliver our programmes at Swansea University and the way in which you study, research, learn and collaborate. We have been working hard to make sure you will have or continue to having an excellent experience with us.

We have further developed some exciting new approaches that I know you will enjoy, both on campus and online, and we cannot wait to share these with you.

At Swansea University and in the Faculty of Science & Engineering, we believe in working in partnership with students. We work hard to break down barriers and value the contribution of everyone. Our goal is an inclusive community where everyone is respected, and everyone's contributions are valued. Always feel free to talk to academic staff, administrators, and your fellow students - I'm sure you will find many friendly helping hands ready to assist you.

We all know this period of change will continue and we will need to adapt and innovate to continue to be supportive and successful. At Swansea we are committed to making sure our students are fully involved in and informed about our response to challenges.

In the meantime, learn, create, collaborate, and most of all – enjoy yourself!

**Professor Johann (Hans) Sienz**
**Interim Pro-Vice Chancellor/Interim Executive Dean**
**Faculty of Science and Engineering**

| **Faculty of Science and Engineering** | |
|---|---|
| Interim Pro-Vice Chancellor/Interim Executive Dean | Professor Johann Sienz |
| Head of Operations | Mrs Ruth Bunting |
| Associate Dean – Student Learning and Experience (SLE) | Professor Paul Holland |
| **School of Aerospace, Civil, Electrical, General and Mechanical Engineering**<br>**Head of School: Professor Antonio Gil** | |
| School Education Lead | Professor Cris Arnold |
| Head of General Engineering | Dr Patricia Xavier |
| MSc Virtual Reality Programme Director | Dr Peter Dorrington |

## STUDENT SUPPORT

The Faculty of Science and Engineering has two **Reception** areas - Engineering Central (Bay Campus) and Wallace 223c (Singleton Park Campus).

Standard Reception opening hours are Monday-Friday 9am-5pm.

The **Student Support Team** provides dedicated and professional support to all studentsin the Faculty of Science and Engineering. Should you require assistance, have any questions, be unsure what to do or are experiencing difficulties with your studies or in your personal life, our team can offer direct help and advice, plus signpost you to further sources of support within the University. There are lots of ways to get information and contact the team:

**Email:** studentsupport-scienceengineering@swansea.ac.uk (Monday–Friday, 9am–5pm)

**Call:** +44 (0) 1792 295514 and 01792 6062522 (Monday-Friday, 10am–12pm, 2–4pm).

**Zoom:** By appointment. Students can email, and if appropriate we will share a link to our Zoom calendar for students to select a date/time to meet.

The current student **webpages** also contain useful information and links to otherresources:

https://myuni.swansea.ac.uk/fse/coe-student-info/

## READING LISTS

Reading lists for each module are available on the course Canvas page and are also accessible via http://ifindreading.swan.ac.uk/. We've removed reading lists from the 22-23 handbooks to ensure that you have access to the most up-to-date versions. Access to print material in the library may be limited due to CV-19; your reading lists will link to on-line material whenever possible. We do not expect you to purchase textbooks, unless it is a specified key text for the course.

## THE DIFFERENCE BETWEEN COMPULSORY AND CORE MODULES

**Compulsory modules** must be **pursued** by a student.

**Core modules** must not only be **pursued**, but also **passed** before a student can proceed to the next level of study or qualify for an award. Failures in core modules must be redeemed.

Further information can be found under "Modular Terminology" on the following link - https://myuni.swansea.ac.uk/academic-life/academic-regulations/taught-guidance/essential-info-taught-students/your-programme-explained/

# MSc (FHEQ Level 7) 2022/23
# Virtual Reality
**MSc Virtual Reality**

**Coordinator: Dr PJ Dorrington**

| Semester 1 Modules | Semester 2 Modules |
|---|---|
| **EG-M126**<br>**Development of Virtual Reality Environments 1**<br>**30 Credits**<br>**Mr EL Thomas/Mr S Vowles** | **EG-M130**<br>**Development of Virtual Reality Environments 2**<br>**30 Credits**<br>**Mr S Vowles/Dr PJ Dorrington/Mr EL Thomas** |
| **EG-M131**<br>**Case Study in state-of-the-art Virtual Reality**<br>**15 Credits**<br>**Dr PJ Dorrington** | **MN-M587**<br>**Digital Marketing**<br>**15 Credits**<br>**Mr PA Davies** |
| **MSDM00**<br>**The Digital Revolution (VR)**<br>**15 Credits**<br>**Dr RJ Jones/Dr LE Evans/Dr CA Pak** | **MSMM03**<br>**Mobile Technology Practice (VR)**<br>**15 Credits**<br>**Mrs NV Williams/Dr A Herman** |
| **Dissertation** | |
| **EG-D13**<br>**MSc Dissertation - Virtual Reality**<br>**60 Credits**<br>**Dr PJ Dorrington**<br>**CORE** | |
| **Total 180 Credits** | |

# EG-D13 MSc Dissertation - Virtual Reality

**Credits: 60 Session: 2022/23 June-September**

**Pre-requisite Modules:**

**Co-requisite Modules:**

**Lecturer(s):** Dr PJ Dorrington

**Format:** Typically 1 hour per week i.e 10-15 hrs total contact time. Each student is to be supervised in accordance with the University's Policy on Supervision, with a minimum of three meetings held. A careful record should be kept, agreed between supervisor and student, of all such formal meetings, including dates, action agreed and deadlines set.

**Delivery Method:** The module is delivered primarily as an individual research project. The student is expected to liaise with the supervisor on a regular basis, with a minimum University requirement of three formal meetings for full-time students. In the case of part-time students it is recommended that a minimum of four meetings are held. Ideally, contact should be more regular, with at least one meeting a week to discuss the development and progress of the project. Depending on the project the student would be expected to carry out this research individually and to complete the necessary risk assessments and training required to work on an industrial site or within laboratory facilities of the University.

**Module Aims:** The module aims to develop fundamental research skills. It comprises the development of supervised research work leading to a dissertation in the field of the Master's degree programme. The specific research topic will be chosen by the student following consultation with academic staff.

**Module Content:** Study for the dissertation, which may be based on practical, industrial, or literature work, or any combination of these, is primarily carried out over a period of about 12 weeks, with the dissertation being submitted at the end of September. Preparatory work on the dissertation may take place during Part One of the programme but students will only be permitted to submit their dissertation following successful completion of Part One.

In conducting the research project and dissertation the student will be exposed to all aspects of modern information retrieval processes, the organisation and resourcing of research and the organising and presentation of experimental data. The student must make inferences on conclusions, based on the evidence provided and supported by the research work. Furthermore they must assess the significance of this work in relation to the field and make suggestions about how further work could improve or clarify the research problem. The results of the project will be disseminated in a substantial dissertation demonstrating the student's ability to research a subject in depth.

The student will meet regularly with the supervisor to ensure that the project is well developed and organised. Progress will be monitored.

**Intended Learning Outcomes:**

On completion of this module, students should have the ability to:

- Investigate a research topic in detail;
- Formulate research aims;
- Devise and plan a research strategy to fulfil the aims;
- Carry out research work - undertake a literature search, a laboratory based or computer based investigation or a combination of these;
- Gather, organize and use evidence, data and information from a variety of primary and secondary sources;
- Critically analyse information;
- Make conclusions supported by the work and identify their relevance to the broader research area;
- Resolve or refine a research problem, with reasoned suggestions about how to improve future research efforts in the field; and
- Produce a report (dissertation), with the findings presented and defended in a well organised and reasoned manner.

**Assessment:** Project (100%)

**Assessment Description:** PRESENTATION OF WORK SEPTEMBER 01ST
SUBMISSION OF DISSERTATION SEPTEMBER 14TH

The research project and dissertation forms Part Two of the Masters degree.

Students should refer to:
https://www.swansea.ac.uk/academic-services/academic-guide/postgraduate-taught-awards-regulations/standard-taught-masters/

In particular, section 14 will provide further Information about dissertation preparation and submission.

The word limit is 20,000. This is for the main text and does not include appendices (if any), essential footnotes, introductory parts and statements or the bibliography and index.

Each student is to submit an electronic copy of their dissertation through the Turnitin link on Canvas by the deadline. The online system will automatically check the similarity of the report.

The dissertation must contain:

• A statement that it is being submitted in partial fulfilment of the requirements for the degree;
• A summary of the dissertation not exceeding 300 words in length;
• A statement, signed by you, showing to what extent the work submitted is the result of your own investigation.
• Acknowledgement of other sources shall be made by footnotes giving explicit references. A full bibliography should be appended to the work;
• A declaration, signed by you, to certify that the work has not already been accepted in substance for any degree, and is not being concurrently submitted in candidature for any degree; and
• A signed statement regarding availability of the thesis.

The dissertation is marked by the supervisor and another member of staff and sent to an External Examiner for moderation. An Internal Exam Board is then held to confirm the mark. Finally, all marks are ratified at the University Postgraduate Taught Examination Board.

**Moderation approach to main assessment:** Universal double-blind marking

**Assessment Feedback:** Informal feedback will be given during regular meetings with supervisors. The supervisor will also provide an assessment of the project drafting skills during the planning of the dissertation. Work will be returned according to specified deadlines and accompanied by constructive comment.

A Feedback session will be given to any student who fails their dissertation and is permitted by the Award Board to resubmit their work.

**Failure Redemption:** Candidates who fail the dissertation are given an opportunity to resubmit the dissertation within 3 months of the result of the examination if a full-time student or 6 months for part-time students. Such students will be given one formal feedback session, including written feedback on the reasons for failure, immediately following confirmation of the result by the University Postgraduate Taught Examination Board. The opportunity to resubmit will only be offered to students who submit a dissertation and are awarded a fail. Those candidates who do not submit a dissertation will not be offered a resubmission opportunity.

**Additional Notes:** Delivery of both teaching and assessment will be blended including live and self-directed activities online and on-campus.

The Faculty of Science and Engineering has a ZERO TOLERANCE penalty policy for late submission of all coursework and continuous assessment. If an extension is deemed appropriate a Postgraduate Taught Masters ‘Application for Extension to the Submission

# EG-M126 Development of Virtual Reality Environments 1

**Credits: 30 Session: 2022/23 September-January**

**Pre-requisite Modules:**

**Co-requisite Modules:**

**Lecturer(s):** Mr EL Thomas, Mr S Vowles

**Format:** 1x3 hour practical session per week.
1x3 hour seminar, brainstorming and student-support session.

Contact Hours will be delivered through a blend of live activities online and on-campus, and may include, for example, lectures, seminars, practical sessions and Academic Mentoring sessions.

**Delivery Method:** All Programmes will employ a blended approach to delivery using the Canvas Digital Learning Platform for live and self-directed online activity, with live and self-directed on-campus activities each week. Students may also have the opportunity to engage with online versions of sessions delivered on-campus

1x3 hour practical session per week.
1x3 hour seminar, brainstorming and student-support session.

**Module Aims:** Students will acquire the basic skills necessary to create their own 3D Virtual Reality environments utilising basic project and software management systems.

**Module Content:** Introduction to Virtual Worlds

Virtual World (VW) is the key part of any Virtual Reality (VR) application. This section will cover memory palaces and how to design effectively for spatial memory retention. The Unity3D engine will be introduced along with 3D modelling (For example - Gravity Sketch, Blender, Pro Builder) to create these Virtual Worlds. The Unity3D VR capabilities will be introduced with the VR frameworks (VRTK, SteamVR, Oculus Integration) required to explore the worlds.

Software Management

Any software project needs to consider Software Management so that the project reaches its goals. In this section, key skills and tools for the organisation and protection of the project will be introduced. Students will get taught how to critically think about VR applications via the Strength Weakness Opportunity Threats matrix (SWOT). Students will learn about various software project planning techniques (such as Waterfall, Prototyping, Minimum Viable Product, Spiral, Agile). Tools such as Subversion Tools (GIT, Fork, Github, Gitlab) and Planning tools (Planner, Trello,JIRA) and Team building tool (Teams, Slack, discord) will be introduced to use alongside software management. Students will begin exploring how to think creatively with prototyping with Grey boxing method in Unity3D. The skills learnt in this section will be used throughout the 2 unity modules in order to build critical thinking, self discipline, organisation skills and team building.

C# Scripting

Under all VR Engines is a computer code; Unity3D takes the majority and simplifies it to provide easy to use Graphical User Interfaces (GUI) and provides a C# coding layer to allow for expansion. This expansion can even allow for the authoring of digital tools to automate the workflow. VR applications regularly use this c# code to add functionality to their applications and much of this code is re-purposed code from the Unity Asset Store and other online resources. This section will teach students how to modify C# script and progress to writing their own simple scripts. They will then be able to progress to create their own scripts, such as editor scripts to automate their workflow and create their own digital tools. The areas of interaction will cover physics, sound, User Interfaces, databases and optimizations. The coding will cover basics of print statements, variables, loops, triggers, vectors and algorithms.

Advanced Lighting and Environmental

A key part of VW is the use of lighting, sound and environmental art. The environment could be used to create awe, which in turn leads to openness in people allowing a state of mind more amenable to learning. Light could be used to guide the user to unconscious decisions via Saliency theory. In VR, user engagement is key and pleasant environments increase engagement. Alternatively, the environment may need to be unpleasant or scary to build the correct state of mind, for example, a VR fire safety application. Realism in VR is desirable and it is important to understand how to get the game engine to create realistic, but technically feasible environments. Students will learn how to implement theory with the inbuilt lighting tools, the art pipeline from 3D modelling tools (blender) and cover in more detail the 3D modelling tools in order to understand how to utilise textures and various forms of UV maps (2D surface to 3D surface mapping) to get realistic light effects. Shaders and particles will also be covered teaching the possibility for complex effects. Students will also learn how to develop a soundscape by using spatial sounds and ambisonic recordings.

Artificial Intelligence (AI)

A fundamental part of VR is education of human interaction with applications, this is commonly done via Artificial Intelligences. This section will cover:

- Path-finding of Non-Playable Characters NPC.
- Create State machines for NPC's to react to the players' actions.
- Story branching will be taught to provide a programmable structure to the narrative choices.

We will also explore self-learning machines in the Unity environment, with both reinforced learning and unsupervised learning.

Devices

Throughout the course students will learn how to use Head Mounted Displays (HMD) and Controller technology from Oculus, Vive, Window Mixed Reality (WMR) and Valve Index.

Additional technologies such as Augmented Reality (AR) both in handheld video pass through AR (Iphone ARkit, Andriod ARcore) and Light addition AR (Hololens). Other technologies will also be covered such as eye tracking, additional trackers, light field displays and scent modules.

**Intended Learning Outcomes:** o Through the exploring of and exposure to various tools and assets, students will develop advanced VR skills enabling them to create working, organised and original applications.
o In solo VR development, students will exploit cross-disciplinary connections between theoretical and practical concepts.
o Students will be able to plan, present, evaluate and defend an original VR concept.
o Students will be able to appraise and value both solo and team based VR development approaches in order to best develop and design real VR applications.

**Assessment:** Assignment 1 (10%)
Assignment 2 (10%)
Assignment 3 (20%)
Assignment 4 (20%)
Assignment 5 (10%)
Group Work - Coursework (30%)

**Assessment Description:** Assignment 1: (Virtual Worlds)
Weighting: 10%
By working on a basic problem the student will demonstrate in class their competency in a basic set of skills to include: Know the Project View Window, Manage Scene files, Navigate the Scene View Window, Reorganize the Unity interface, Understand Tags, Understand the Hierarchy Window, Understand the Inspector Window, Understand the Project View Window, Utilize the Inspector Window.

Assignment 2: (Software Management)
Weighting: 10%
By working on a basic problem the student will demonstrate in class the basic management tools of SWOT, the GIT repository and project planning.

Assignment 3: (Scripting)
Weighting: 20%
Evidence of working with and modifying existing C# codes and use of basic physics.

Assignment 4: (Advanced Lighting)
Weighting: 20%
A VR environment will be developed demonstrating elements of advanced lighting and 3D graphics and the ability to capture video footage from within the environment.

Assignment 5: (AI)
Weighting: 10%
A VR environment will be developed demonstrating different pathfinding methods, state machine and story branching.

Group Work - Coursework (Group Assignment)
Weighting: 30%
A small group exercise where teams will use the knowledge gained so far to pitch a potential VR project. This will include management tools and an informed and realistic project plan with timings based on experience to date.

**Moderation approach to main assessment:** Second marking as sampling or moderation

**Assessment Feedback:** All assessments will be 1-2-1 authentic, summative assessments by teaching staff according to openly available rubrics. Feedback therefore occurs during every assessment.

**Failure Redemption:** Students repeat the components that they have failed. Members of the VR Programme Team will act as other group members in these instances.

**Additional Notes:** Delivery of both teaching and assessment will be blended including live and self-directed activities online and on-campus.

NA

# EG-M130 Development of Virtual Reality Environments 2

**Credits: 30 Session: 2022/23 January-June**

**Pre-requisite Modules:** EG-M126

**Co-requisite Modules:**

**Lecturer(s):** Mr S Vowles, Dr PJ Dorrington, Mr EL Thomas

**Format:** 1x3 hour practical session per week.
1x3 hour seminar, brainstorming and student-support session.

Contact Hours will be delivered through a blend of live activities online and on-campus, and may include, for example, lectures, seminars, practical sessions and Academic Mentoring sessions.

**Delivery Method:** All Programmes will employ a blended approach to delivery using the Canvas Digital Learning Platform for live and self-directed online activity, with live and self-directed on-campus activities each week. Students may also have the opportunity to engage with online versions of sessions delivered on-campus

1x3 hour practical session per week.
1x3 hour seminar, brainstorming and student-support session.

**Module Aims:** Practical lab sessions covering VR applications.

**Module Content:** Syllabus

Information Machines

VR/ AR is commonly used to provide spatial overlays of information. This can be for example, seeing:

• The underlying pipes in roads.
• Network signal strength around a building.
• Overlaying data logs of plants' equipment to understand the machines' states.
• Data Analytics of user focus and emotions

Students will learn how in situ systems can be represented. Students will learn how to interface with CAD based systems and BIM based systems for getting available data on 3d geometry, materials properties and operators feedback. Students will have to learn how to cope with a variety of data types (i.e. different geo-coordinate systems, different available data in information systems) How is the Virtual World is going to be orientated to the real world using target recognition and/or location services.

Empathy

VR is a behaviour inducing machine. Capable of invoking stronger reactions than other techniques and technologies, VR has been utilised in a wide variety of behaviour modifications. Ranging in use from:

• Building empathy with managers and operators in highline work on cell towers.
• Telling emotive stories through the medium of VR for both disabilities, refugees or even inanimate objects.
• Helping people overcome fears such as of heights, in addition to helping manage PTSD and social interactions.
• Helping people think about ethical scenarios in self driving cars.

Students will learn about how emotions can be instilled by the technology and how scenarios can be set up to create ethical dilemmas. Students will have to learn how to tell their stories in VR such that the user can assume the role of the character they have been asked to be. Students will also have to learn how to collect data and learn the laws around data collection. Students will have to plan how to carry out social experiments to collect qualitative and quantitative data.

Training

Training carried out in VR has been shown to be significantly more effective and longer lasting. Training in VR has been used in a wide range of uses such as:

• Electrical Safety in Transforms operations
• Assembly of devices
• Customer Service Staff training for emotive situations
• Doctors carrying out procedures
• Sports simulations.

VR learning is often captive and always needs to be authentic as technically feasible. It can also be a more sustainable way of training. Students will be expected to evaluate the appropriateness of using VR for any given task. Students will learn the pedagogy, communication and thoroughness to provide robust and effective instruction. Ergonomics must be considered as for example what might work for a taller user may not work for a short user. Gamification of the task has over other learning methods. By entering participants into a playful environment you can enable the ludo state which enables participants to explore, learn and understand the realms of the game as given which of course will significantly improve how they will be able to handle the trained task as the circumstances of its operation changes. Play testing of the VR apps is very important to making the app usable to the end user and this should be considered even in the captive learning environment.

**Intended Learning Outcomes:** * Students will design and create self-contained, usable VR applications through applying existing knowledge.

* Students will critically review their VR applications and be able to generate, analyse and evaluate data from these systems to inform further improvements and optimisations.
* Students will create working VR applications of different types from the ground up.
* Students will be able to assemble multidisciplinary teams and logically allocate tasks in order to design and develop real VR applications successfully.
* Students will create an information machine VR/AR application to present, analyse and transfer data to a user with a Industry 4.0 methodology.
* Students will create an empathy VR/AR application to invoke emotional responses in the user.
* Students will create a training VR/AR application concentrating on pedagogy.

**Assessment:** Assignment 1 (25%)
Assignment 2 (25%)
Assignment 3 (50%)

**Assessment Description:** Assignment 1: (Information Machines)
Weighting: 25%
As part of a team students will develop an in-situ Information Machine that functions at a location on the Bay Campus and operates in AR. This will equip students to develop ‘guided tour’ type applications.

Assignment 2: (Empathy)
Weighting: 25%
As part of a team students will develop an immersive VR system such that a user can experience an environment outside their normal experience and be better able to empathise with others for whom this environment is normal. This will equip students to develop ‘experience’ type applications.

Assignment 3: (Training)
Weighting: 50%
As part of a team students will develop a training environment implementing a basic understanding of pedagogical principles to train a user in a particular area of knowledge or skill. This will equip students to develop ‘training’ type applications.

**Moderation approach to main assessment:** Second marking as sampling or moderation

**Assessment Feedback:** All assessments will be 1-2-1 authentic, summative assessments by teaching staff according to openly available rubrics. Feedback therefore occurs during every assessment.

**Failure Redemption:** Students repeat the components that they have failed. Members of the VR Programme Team will act as other group members in these instances.

**Additional Notes:** Delivery of both teaching and assessment will be blended including live and self-directed activities online and on-campus.

# EG-M131 Case Study in state-of-the-art Virtual Reality

**Credits: 15 Session: 2022/23 September-January**

**Pre-requisite Modules:**

**Co-requisite Modules:**

**Lecturer(s):** Dr PJ Dorrington

**Format:** No formal lectures involved. Tutorials given by individual MSc research project supervisors and MSc Coordinator (20 h)
Directed private study (180 h).

**Delivery Method:** No formal lectures involved.
Tutorials given by individual MSc research project supervisors and MSc Coordinator (20 h) Directed private study (180 h).

**Module Aims:** The aim of the module is to undertake an in-depth study into the state-of-the-art of VR related to a student and discipline-specific subject. This will be done by carrying out a detailed literature survey and examination of their chosen topic of specialisation. Additionally, students will explore interdisciplinary activities or opportunities in the chosen field.

**Module Content:** • Literature review on chosen research topic.
• Familiarisation with chosen research topic.
• Identification of interdisciplinary links relevant to the chosen topic.

**Intended Learning Outcomes:** • Conduct an extensive literature review on the chosen research topic.
• Identify interdisciplinary links between the chosen topic and other subject specialisms.
• Assess how VR tools can be used to enhance the core/fundamental aspects of the research topic.
• Explain the socioeconomic, environmental, and ethical aspects of the project.
• Produce a report detailing the above.
• Present the summary of the work in 15-20 min oral powerpoint presentation.

**Assessment:** Presentation (5%)
Presentation (20%)
Report (25%)
Report (50%)

**Assessment Description:** Presentation (5%) A short pitch to academic staff to introduce the topic of research
Presentation (20%) A presentation to an open audience describing the chosen topic
Report (25%) An executive summary document describing the research carried out suitable for a general non-specialist audience
Report (50%) An academically rigorousd report describing the topic of research suitable for an expert audience

**Moderation approach to main assessment:** Universal second marking as check or audit

**Assessment Feedback:** Through oral examination for feedback of the report

**Failure Redemption:** Supplementary examination period (August of the current academic year):- Resubmit the report;
a 20-minute presentation of the research findings and conclusions followed by 10 minutes Q&A session.

**Additional Notes:** Delivery of both teaching and assessment will be blended including live and self-directed activities online and on-campus.

Recommended texts to be defined by supervisor and/or MSc Coordinator according to the chosen research topic.

# MN-M587 Digital Marketing

**Credits: 15 Session: 2022/23 January-June**

**Pre-requisite Modules:**

**Co-requisite Modules:**

**Lecturer(s):** Mr PA Davies

**Format:** 10 x 3 hour lectures and seminars combined (2-4 held within a PC lab)

**Delivery Method:** Primarily on campus

**Module Aims:** Digital technology continues to touch and shape almost every aspect of modern marketing commutations. The course aims to provide students with an in-depth understanding of the business (and business development) challenges and opportunities presented by the introduction of new technology.

Students will learn about the key concepts that underpin creating sustainable business models within the digital environment through modern marketing techniques with the emphasis on how disruptive technology can be used to effect and evolve multi-channel marketing.

The course is practical as well as academic in nature providing students with hands-on experience of developing not only their digital skills (including social, site design search engine and app development) but also the necessary business, research and presentational skills required to build and deploy a real life dynamic digital marketing solution.

**Module Content:**

1. Course Introduction: The impact of Digital
2. New Marketing and the Digital Involvement Cycle
3. Integrated Digital Marketing Strategy
4. Content Marketing and Multi-Channel Marketing
5. Developing Online Presence I (Web)
6. Developing Online Presence II (Mobile & App)
7. Online Advertising
8. Analytics and BIG Data
9. Digital Alignment and The Socially Responsible DIO
10. Review

**Intended Learning Outcomes:** On completion of this module students should be able to:

• Apply strategies to shape the development and growth of digital marketing with the organisation.

• Critically explain and evaluate different types of digital marketing models.

• Formulate a practical plan for the delivery of an effective digital marketing campaign

• Recognise and interpret the importance of multi-channel digital marketing and the influence of social media on business and consumer buying behaviour

• Prioritise and apply the principles of effective design and implementation to online products and services including web, mobile web and mobile App channels.

**Assessment:** Coursework 1 (70%)
Presentation (30%)

**Resit Assessment:** Coursework reassessment instrument (100%)

**Assessment Description:** Item 1 70% Individual Coursework
• IDM strategy proposal for an organisation of student choice – max 4,000 words (excluding tables, appendices)

Item 2 - marks awarded in item 3
• Practical wix.com build - no more than 4-pages illustrating relevant elements of their proposal. This feeds item 3.

Item 3 - 30% Individual Presentation
• Video and presentation no longer than 4 minutes in duration to accompany and explain how their proposal aligns with their practical task (item 2). Item 2 should include as a tour of their practical work.

**Moderation approach to main assessment:** Second marking as sampling or moderation

**Assessment Feedback:** Students will receive formative feedback in lectures and seminars.

Examination: Generic feedback via Canvas plus drop-in session for students who would like individual feedback on their performance.

Group coursework: Written feedback via Canvas

**Failure Redemption:** To redeem failure in this module students will be expected to resit the coursework component and this will be weighted at 100%.

**Additional Notes:** Delivery of both teaching and assessment will be blended including live and self-directed activities online and on-campus.

This is a compulsory module on the MSc Marketing

This module is available to incoming exchange/visiting students, if there are any linked pre-requisites students will need to provide a copy of their transcript to assess suitability. Please email s.l.lacey@swansea.ac.uk for more information.

Please note - SOM Postgraduate taught modules are not available to undergraduate study abroad exchange or visiting students.

# MSDM00 The Digital Revolution (VR)

**Credits: 15 Session: 2022/23 September-January**

**Pre-requisite Modules:**

**Co-requisite Modules:**

**Lecturer(s):** Dr RJ Jones, Dr LE Evans, Dr CA Pak

**Format:** 22 hours (11 x 2-hour lectures, including in-class discussions of set readings)

**Delivery Method:** Primarily on campus

**Module Aims:** Through close analysis of digital media/new media texts, this module will examine the theoretical and practical issues of new media technologies and the implications for social, political and economic spheres.

**Module Content:** Drawn from: foundational theories of digital media, including medium theory and cybernetics; virtual reality and the roots of the 'virtual' in computer theory; computer history and software history; the convergence of communication and computing; digital ecology and its focus on the user; the history of the internet and the web, including recent developments; information, knowledge and collaboration; networked publics and real-time ‘streams’; critiques and critics of digital media; posthumanism and transhumanism.

**Intended Learning Outcomes:** At the end of this module, students should have:
1. The ability to critically analyse the debates surrounding digital media.
2. Developed an advanced understanding of theoretical issues and discussions within digital media.
3. The ability to take advanced knowledge of key theorists, within their historical context, and apply that to today’s contemporary digital media world.
4. Developed an advanced knowledge and appreciation of foundational texts within the field of digital media.
5. The ability to construct a persuasive argument around the comparisons and contrasts that emerge in the discussion of digital media/medium theory.

**Assessment:** Coursework 1 (40%)
Coursework 2 (60%)

**Assessment Description:** Coursework 1: 1500-word critical report (40%) – a critical report on the student’s choice of one out of a selection of keyworks from digital media history, which will have already been discussed within class.

Coursework 2: 2250-word essay (60%) – the student’s choice from a predetermined selection of essay topics listed in the module handbook, though students have some freedom to choose their own essay topic, in consultation with the module coordinator, provided it is appropriately aligned to the module’s learning outcomes

**Moderation approach to main assessment:** Second marking as sampling or moderation

**Assessment Feedback:** Individual written feedback on coursework, and optional face-to-face meetings with the module coordinator.

**Failure Redemption:** re-submit failed component

**Additional Notes:** Delivery of both teaching and assessment will be blended including live and self-directed activities online and on-campus.

This module is for students on the MSc in Virtual Reality only.

# MSMM03 Mobile Technology Practice (VR)

**Credits: 15 Session: 2022/23 January-June**

**Pre-requisite Modules:**

**Co-requisite Modules:**

**Lecturer(s):** Mrs NV Williams, Dr A Herman

**Format:** 3 hour weekly workshop
Contact Hours will be delivered through a blend of live activities online and on-campus, and may include, for example, lectures, seminars, practical sessions and Academic Mentoring sessions.

**Delivery Method:** All Programmes will employ a blended approach to delivery using the Canvas Digital Learning Platform for live and self-directed online activity, with live and self-directed on-campus activities each week. Students may also have the opportunity to engage with online versions of sessions delivered on-campus

3 hour weekly workshop in a room where group work can be facilitated.

**Module Aims:** A practical opportunity to explore the possibilities of mobile technology and social media platforms using still images, video and sound.

**Module Content:** 1. Introduction, assessment, creative possibilities of mobile technology.

2. How to work creatively: responding to a brief or creating own ideas.

3. Technical possibilities of mobile technology: sound 1 (recording, scripting, visualizing audio)

4. Technical possibilities of mobile technology: sound 2 (editing and sharing)

5. Social media platforms: the potential and the pitfalls

6. You on screen: presenting and vlogging

7. Telling a story: moving images 1 (storyboarding, scripting, permissions)

8. Telling a story: moving images 2(filming, editing, copyright, sharing)

9. Interviewing: techniques and technical requirements

10. Workshop

11. Workshop

**Intended Learning Outcomes:** At the end of this module, students should have…

1. An advanced awareness of the creative possibility of mobile technology;
2. An advanced knowledge of how individuals and companies make use of images and sound to convey desired messages;
3. A thorough understanding of how individuals and orgranisations maximize the potential of social media;
4. A confident technical and creative understanding of how to manipulate images and sound to convey their own messages, including their own professional online presence.

**Assessment:** Coursework 1 (65%)
Coursework 2 (35%)

**Assessment Description:** Coursework 1: practical online portfolio (to include a range of short form audio and visual content of varying lengths: e.g. podcast (5.00 min) / blog (2.30 min) / video or audio interview with industry representative (4.00 min.) ) 65%

Coursework 2: report (1,000 words)
(e.g. Write a critical analysis of how two contrasting organisations make use of social media within a specific time period.) 35%

**Moderation approach to main assessment:** Second marking as sampling or moderation

**Assessment Feedback:** Feedback on Grademark, personal meeting can be arranged if student wishes to discuss.

**Failure Redemption:** Re-submit failed component.

**Additional Notes:** Delivery of both teaching and assessment will be blended including live and self-directed activities online and on-campus.

This module is not available to visiting and exchange