1. **Title of the module**

DIGM5090 Virtual Reality

1. **Division or partner institution which will be responsible for management of the module**

Computing, Engineering and Mathematical Sciences

1. **The level of the module (e.g. Level 4, Level 5, Level 6 or Level 7)**

Level 5

1. **The number of credits and the ECTS value which the module represents**

15 credits (7.5 ECTS)

1. **Which term(s) the module is to be taught in (or other teaching pattern)**

Spring

1. **Prerequisite and co-requisite modules**

None

1. **The course(s) of study to which the module contributes**

BSc Digital Design

BSc Digital Design with a Year in Industry

BSc Digital Design with a Year Abroad

BEng (Hons) Biomedical Engineering with a Foundation Year

BEng (Hons) Biomedical Engineering

BEng (Hons) Biomedical Engineering with a Year in Industry

1. **The intended subject specific learning outcomes.
On successfully completing the module students will be able to:**
2. Understand the basic concepts of Virtual Reality
3. Apply knowledge of the use of 3D models and Virtual Reality in the design of a Virtual Reality application using specific hardware and software tools
4. Understand the respective importance of technology and content in Virtual Reality systems
5. Conduct Human Factors assessment of Virtual Reality systems and analyse their impact on the user experience in virtual environments.
6. **The intended generic learning outcomes.
On successfully completing the module students will be able to:**
7. Generate, analyse, present and interpret data
8. Use Information and Communications Technology
9. Apply their personal and interpersonal skills whilst working as a member of a team
10. Ability to communicate effectively using a variety of methods
11. Work in flexible, creative and independent ways and to think critically
12. Organise and manage time and resources within an individual project and a team project
13. **A synopsis of the curriculum**

This module introduces you to the theory, principles and practice behind virtual reality. Indicative topics include: perception and action in virtual environments, presence and immersion concepts, 3D interaction techniques, virtual reality systems, human factors in virtual reality, design principles for virtual environments, application domains for virtual reality. Theory is followed by programming workshops where you will be introduced to different software development kits. You will apply the acquired theoretical and practical knowledge in building a substantial project.

1. **Reading List (Indicative list, current at time of publication. Reading lists will be published annually)**

Jerald, J. (2015). The VR book: Human-centered design for virtual reality. Morgan & Claypool.

Sherman, W. R., & Craig, A. B. (2018). Understanding virtual reality: Interface, application, and design. Morgan Kaufmann.

LaValle, S. (2016). Virtual reality

1. **Learning and Teaching methods**Contact hours: 30

Private Study Hours: 120

Total Study Hours: 150

1. **Assessment methods**

13.1 Main assessment method

Assessment of the module is 100% by coursework.

* Application prototype (30%) – 3 weeks of development work, group work - individually assessed
* Final application (40%) – 5 weeks of development work, group work - individually assessed
* Report (20%) – 2000 words, group work - individually assessed
* Workshop exercise (10%)

13.2 Reassessment methods

100% coursework.

1. ***Map of module learning outcomes (sections 8 & 9) to learning and teaching methods (section12) and methods of assessment (section 13)***

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Module learning outcome** | *8.1* | *8.2* | *8.3* | *8.4* | *9.1* | *9.2* | *9.3* | *9.4* | *9.5* | *9.6* |
| **Learning/ teaching method** |  |  |  |  |  |  |  |  |  |  |
| **Private Study** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** |
| *Lectures* | **X** | **X** |  **X** |  **X** | **X** |  |  |  |  |  |
| *Workshops* | **X** | **X** | **X** | **X** |  | **X** | **X** | **X** |  | **X** |
| **Assessment method** |  |  |  |  |  |  |  |  |  |  |
| *Application prototype* | **X** | **X** |  |  |  | **X** | **X** | **X** | **X** | **X** |
| *Final application* | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** |
| *Report* | **X** | **X** | **X** | **X** | **X** | **X** |  | **X** | **X** | **X** |
| *Workshop exercise* | **X** | **X** |  | **X** |  | **X** |  |  | **X** | **X** |

1. **Inclusive module design**

The Division recognises and has embedded the expectations of current equality legislation, by ensuring that the module is as accessible as possible by design. Additional alternative arrangements for students with Inclusive Learning Plans (ILPs)/declared disabilities will be made on an individual basis, in consultation with the relevant policies and support services.

The inclusive practices in the guidance (see Annex B Appendix A) have been considered in order to support all students in the following areas:

a) Accessible resources and curriculum

b) Learning, teaching and assessment methods

1. **Campus(es) or centre(s) where module will be delivered**

Canterbury

1. **Internationalisation**

Abilities to develop Virtual Reality experiences are expected to be in global demand. This module introduces students to the latest trends and technologies in this area. Students will also develop their own VR experience using internationally recognised software.

Students will draw on the literature from international journals and conferences that focuses on Virtual Reality and the latest globally significant advances in the field (i.e., IEEE Virtual Reality Conference).

**DIVISIONAL SUPPORT OFFICE USE ONLY**

**Revision record – all revisions must be recorded in the grid and full details of the change retained in the appropriate committee records.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Date approved | Major/minor revision | Start date of delivery of revised version | Section revised | Impacts PLOs (Q6&7 cover sheet) |
|  |  |  |  |  |