Glasgow School of Art Programme Specification
Programme Title: BSc (Hons) Immersive Systems Design

Please note that this programme specification is correct on the date of publication but may be subject to amendment prior to the start of the 2021-22 Academic Year.

1. Programme Details:

Programme Title	BSc (Hons) Immersive Systems Design
HECOS Code	3D Modelling 100368/100363/101020 Games & Virtual Reality 100368/100363/101020
School	Simulation and Visualisation
Programme Leader	Sandy Louchart
Minimum Duration of Study	48 months
Maximum Duration of Study	72 months
Mode of Study	Full-time
Award to be Conferred	BSc (Hons)
Exit Awards	Stage 1 - Cert HE Immersive Systems Design Stage 2 - Dip HE Immersive Systems Design Stage 3 - BSc Immersive Systems Design Stage 4 - BSc (Hons) Immersive Systems Design
SCQF Level:	10
Credits:	480

Academic Session	2021-22
Date of Approval	PACAAG April 2021

2. Awarding Institution	University of Glasgow
3. Teaching Institutions	The Glasgow School of Art
3.1 Campus	Glasgow
4. Lead School/Board of Studies	Simulation and Visualisation
5. Other Schools/Board of Studies	N/A
6. Programme Accredited By (PSRBs)	N/A

7. Entry Qualifications	
7.1 Highers	Standard: ABBB, including Maths (for Games & VR only) and a literate subject Minimum: BBCC, including Maths for Games & VR only) and a literate subject
7.2 A Levels	Standard: ABB including Maths (for Games & VR only) and GCSE English at A/7 grade or above Minimum: BBC, including Maths (for Games & VR only) and GCSE English at A/7 grade or above
7.3 Other	International Baccalaureate 30+ points including Maths at Higher-Level (5 or above) for students applying to the Games and Virtual Reality. Portfolio of work must be submitted

7.4 English Language Requirements	All students will have to provide evidence of English language proficiency when applying. International Students Students who require a Tier 4 visa to study in the UK must meet one of the following requirements in order to gain entry: • IELTS for UKVI Academic with an overall score of 6.0 with a minimum of 5.5 in all components; • complete an acceptable Pre-sessional English Language Programme taught from within the UK with an outcome that equates to the IELTS scores as stated above. Students who have a degree from an English speaking country, or are a national of an English speaking country as listed in the UKVI Guidance, may use this as proof of English language ability.

8. Programme Scope:

BSc Immersive Systems Design, with pathways in:
3D Modelling
Smart Technology
User Experience
Games & Virtual Reality

As the Internet of things advances, the very notion of a clear dividing line between reality and virtual reality becomes blurred, sometimes in creative ways. Geoff Mulgan, NESTA (Huffington Post, 28/1/13)
"That 'Useless' Liberal Arts Degree has become Tech's Hottest Ticket' (Forbes, 29/7/15)

This programme will provide graduates with a highly relevant skill set in practical software and immersive systems (Virtual Reality) development, an understanding of how people and technology interact, combined with the creative insight essential to help create the future in immersive systems. This is a technology focussed degree with a strong art-school foundation, combining rigorous taught components with studio based learning and critical thinking.

Visualisation and Virtual Reality has been an area of excellence for the School of Simulation and Visualisation (previously Digital Design Studio) since its formation over 20 years ago, and is an area that is now seeing a surge of rapid development and adoption worldwide. With the entertainment market driving costs down, new opportunities are emerging for VR in broadcast and entertainment, medical, engineering and other domains, with major investments from companies as varied as Sky Broadcasting, Sony, Facebook, Amazon and Microsoft. Students can expect to benefit from the School of Simulation and Visualisation's continued research and commercial work (in e.g. archaeology and medical sectors) and relationships with major broadcasters, VR developers and private and public sector clients. Through the programme students will gain an understanding of major issues around core and specialist topics in Immersive Systems alongside practical skills for creating engaging and immersive interactive experiences.

The BSc in Immersive Systems Design will provide students with a foundation in theory and practical understanding of the methods, tools and techniques required to conceive, design and evaluate new interactive and immersive systems for traditional and mobile platforms.

Specialist pathways will allow students to focus on specific areas of interest in Immersive Systems development – 3D modelling, user experience, games and, for those with an interest in the interaction of Immersive and ubiquitous and smart systems, smart technology.

The Immersive Systems Design degree is set firmly within the computing domain, informed by the computing disciplines of Software Engineering and Information Technology (QAA Computing Subject Benchmark Statement, Sections 2.11, 2.12, 2.14). Accordingly, students in all specialisms will study

- problem definition, specification (including formal specification), design, implementation (including debugging) and maintenance, software testing, change management and documentation (2.11)
- the selection and application of software and hardware (2.12)
- integration of components to provide solutions in a variety of application domains (2.12)
- ethical and professional issues around risk and cybersecurity (2.12)

All students will also gain an overall understanding in the four specialisms offered by the programme – 3D Modelling, User Experience, Smart Technology and Games– before specialising in the final years of study. All students will also benefit from the opportunity to work collaboratively with students in the other specialisms, working in teams on real-world briefs. They will have opportunities to work with students on other programmes through shared courses and/or through collaborations on cross-school studio projects.

User Experience (UX) is sometimes seen as a specialism within computing – yet this has been the cornerstone for bringing computers out of the science labs and into everyday life. Imagining new and different uses of digital technology, and then working out how to make it usable is as fundamental to the development of digital technologies as the 1s and 0s of binary arithmetic. As the physical keyboard and mouse interfaces are slowly supplanted by touch, gesture and voice, new possibilities, new solutions and new problems will continue to drive the need for User Experience specialists who can blend rigour and vision. In Immersive Systems, there is an even greater than usual need for UX specialists – where e.g. Head Mounted Display (HMD) devices enclose the users field of view, consideration of how the user can interact safely and effectively with a virtual world may mean abandoning long held norms and standard computing metaphors.

Games are a leading application of Immersive Systems technology, and have been the main driver of advances in Virtual Reality technology in recent years. In the years since the turn of the century, Digital games have also been increasingly recognised for their academic depth, with significant scholarly activity in digital games focussing not only on the technological aspects, but on the social, psychological and educational issues. Across the UK a wide variety of Games degrees have emerged, though this is perhaps the first degree that places Games as a specialism within a wider Immersive Systems context. Students will gain experience in a wide range of practical skills relating to game development, along with significant amounts of studio time to dedicate to developing their own projects.

Smart technologies are all about small devices and gadgets that fit into your everyday lifestyle to make a big difference in ways you may never have imagined - it's sometimes called the Internet of Things. With the current wave of Smart devices and our increasingly connected world, there has never been a better time to explore the world of Smart Tech. Through Augmented Reality (c.f. Microsoft Hololens), smart technologies increasingly live at the interface between the virtual and physical worlds – part of a rapidly developing space for technological and social innovation.

3D Modelling is a core discipline for the development of content for Immersive Systems. Here, as a specialism within the Immersive Systems degree, students specialise in 3D modelling while gaining a broader range of technical skills. Technical artists combine knowledge of how software and hardware digital systems function with modelling and animation skills, and are highly valued team members on many Immersive Systems projects, due to their strong understanding of technical issues, problems and solutions related to real-time rendering and application development. An understanding of user experience and user evaluation further enriches and augments students' abilities in modelling and design for specific activities.

The degree will follow a 'T' shape structure, with a common structure in the first two years of the degree, finishing with degree and honours years in which students increasingly specialise in their chosen pathway. In these final years, the course structure is still shared across the pathways, but the projects within studio will allow students to focus on their chosen specialism.

In the final year, a BSc dissertation provides an opportunity to engage in significant independent work with a focus on research & development in a science and technology context.

Across all years, there is an emphasis on Studio and problem based learning – driving learning through a series of projects with real world problems and situations, to provide an authentic context for, and engaging students in, learning (see: The Challenge Driven University Mulgan, et al., NESTA, 2016).

9. Programme Structure:

Students take 120 credits of courses in each year, divided between taught courses and studio.

In the first year, 80 credits are defined in the program, and the final 40 credits are from cross-school collaborative courses focussing on the role of context in student learning and practice at the Glasgow School of Art (e.g. Co-Lab 1 and Co-Lab 2).

In year 2, 100 credits are defined in the program, and the final 20 credits are from cross-school electives and/or other elective courses focussing on critical studies (e.g. courses currently taught by the Design History & Theory within the School of Design).

In year 3, 110 credits are defined in the program, with 10 credits from external courses.
These external courses focus on critical theory in context, and promote critical inquiry – and are delivered with domain specific context, related to the programme itself.

In the final year, BSc students undertake a BSc Dissertation.

The critical studies course portfolio and the course titles and teaching arrangements are currently under review, and may be replaced with equivalent cross-school and/or critical studies courses as these are developed.

Year 1	**Credits**	**SCQF Level**
UISD102 Immersive Systems 1	40	7
UISD101 Studio 1	40	7
UCOLAB1 Co-Lab 1	20	7
UCOLAB2 Co-Lab 2	20	7
Total	**120**	

Year 2		
UISD202 Immersive Systems 2	40	8
UISD201 Studio 2	60	8
UDHTWWD DH&T 2: Worlds and Words of Design (Semester 1 and 2)	20	8
Total	**120**	
Year 3		
UISD302 Immersive Systems 3	40	9
UISD301 Studio 3	60	9
UISD303 Critical Studies: Ethical & Professional Issues	10	9
UDHT3CTDS1 DH&T 3: Concepts and Territories of Design (Semester 1)	10	9
Total	**120**	
Year 4		
UISD402D Immersive Systems Dissertation	40	10
UISD402 Immersive Systems 4	40	10
UISD401D Studio 4	40	10
Total	**120**	

9.1 Programme Structure – Exchange In/Exchange Out/Study Abroad:		
Year 2	**Credits**	**SCQF Level**
Immersive Systems 2 Study Abroad and Exchanges Semester 1	20	8
Immersive Systems 2 Study Abroad and Exchanges Semester 2	20	8
Studio 2 Study Abroad and Exchanges Semester 1	30	8
Studio 2 Study Abroad and Exchanges Semester 2	30	8
Year 3		
Immersive Systems 3 Study Abroad and Exchanges Semester 1	20	9
Immersive Systems 3 Study Abroad and Exchanges Semester 2	20	9
Studio 3 – Study Abroad and Exchanges Semester 1	30	9
Studio 3 – Study Abroad and Exchanges Semester 2	30	9

10. What are the requirements for progressing from each stage/year?

Students who successfully complete and pass all credits from the previous stage of study will be allowed to progress to the next stage.

11. Programme Aims:

The aims of the programme are:

- To provide a sound education and broad basis for a career in user experience design, 3D modelling, digital games, application development, smart technologies, or related areas of computing
- To develop graduates with critical, analytical and problem-based learning skills
- To provide an understanding of the professional standards and terminology of computing and related professions

- To develop graduates with general transferable skills, including communication and interpersonal skills, and the skills for autonomous practice and team-working
- To develop graduates with rich problem solving capabilities with a strong set technical knowledge, understanding and skills to allow them to propose, design and develop technical solutions, building on a basic knowledge of core topics in computing and software development
- To provide students with the knowledge and skills to design and develop 3D immersive applications utilising a range of software tools and hardware devices
- To provide all students a theoretical and practical grounding in the specialist areas of Smart Technology (including 'Internet of Things', wearable computing, smart environments), User Experience (including Human Computer Interaction and relevant aspects of psychology), 3D Modelling and digital Games
- To develop graduates with deeper knowledge and advanced skills in one of the four specialist pathways – Smart Technology, User Experience, 3D Modelling or Games

11.1 Year 1 Aims:

To introduce fundamental topics in computing concepts and provide a grounding in practical computing software development, 3D content development and hardware interaction, with a grounding in the four specialist pathways.

To support and develop students' abilities to apply knowledge, skills and understanding, through independent and collaborative working within and beyond their chosen specialism.

11.2 Year 2 Aims:

To develop the knowledge and skill base gained in Stage 1 to provide a deeper understanding and greater practical expertise in the development of software and hardware solutions for solving problems of increasing complexity.

To further develop knowledge and skills for 3D content development.
Develop knowledge and skills relating requirements gathering and use in subsequent solution design.

To develop interpersonal skills for group work and collaboration, and skills for working autonomously.

11.3 Year 3 Aims:

To develop knowledge and understanding of advanced topics in user experience and content development for immersive systems.

To develop practical experience in the development of 3D immersive systems utilising advanced features and technologies (e.g. networking and online).

To develop specialist knowledge, skills and practice in a chosen pathway specialism

To develop knowledge and critical awareness of professional issues in immersive systems design

11.4 Year 4 Aims:

To complete a substantial self-directed research project, relevant to chosen pathway, under supervision

To gain a critical understanding of the role of digital technology in society, and its social and economic impact.

To develop advanced specialist knowledge, skills and practice in chosen pathway and in advanced aspects of Immersive Systems, such as Artificial Intelligence and procedural content generation, and applications of these relevant to the chosen programme pathway

12. Intended Learning Outcomes of Programme:

After full participation in and successful completion of the programme, students will be able to:

- Demonstrate attainment of the learning outcomes indicated below (12.1-12.4)

12.1 Intended Learning Outcomes of Year 1

By the end of stage 1 students will be able to:

Knowledge and Understanding

- Demonstrate and apply basic mathematics and physics concepts in the development of immersive systems
- Demonstrate, through practice, knowledge of the main theories, concepts and principles of immersive systems and user experience

Practice: Applied Knowledge and Understanding

- Demonstrate an understanding of the fundamentals of digital systems, and develop simple physical computing solutions (using e.g. Raspberry Pi or Arduino)
- Demonstrate an ability to design and develop small applications utilising basic structured and object-oriented programming techniques
- Demonstrate an ability to design and develop simple interactive 2D or 3D experiences using a game engine (e.g. Unreal, Unity3D, etc) and 3D modelling package (e.g. Blender, 3Ds Max, ZBrush)
- Use appropriate software tools to design and develop simple 2D or 3D interactive and non-interactive visualisations and undertake a user requirement exercise
- Locate and describe Immersive systems within historical, theoretical and current cultural contexts

Generic Cognitive Skills

- Evaluate and present arguments, information and ideas routine to immersive systems and offer constructive feedback to support future development
- Reflect upon and evaluate their experiences of collaboration and its impact and influence on the design and production of immersive systems.
- Reflect upon engagement with a range of specialisms across the disciplinary domains of GSA and the impact on their ways of being, seeing, thinking and making.

Communication, ICT and Numeracy

- Present and evaluate ideas, information and work using visual, oral and written forms to a variety of audiences
- Use ICT to convey complex ideas in a well-structured and coherent form to peers and staff
- Autonomy, Accountability and Working with Others
- Exercise some autonomy, initiative and independence in carrying out set project briefs both independently and working collaboratively with others.

12.2 Intended Learning Outcomes of Year 2

Knowledge and Understanding

- Demonstrate knowledge of intermediate programming techniques, data structures, abstract data types and design patterns
- Demonstrate through practice specialist knowledge embedded of the main theories, concepts and principles of immersive systems design and issues related to user experience

Practice: Applied Knowledge and Understanding

- Demonstrate an ability to develop more complex interactive experiences using a 3D game engine within accepted standards
- Demonstrate ability to apply intermediate 3D modelling skills and a deeper understanding in 3D modelling applications
- Gather user requirements and utilise these in the design of solutions to professional level problems in immersive systems development

Generic Cognitive Skills

- Demonstrate an ability to assess and evaluate the usability of immersive systems
- Undertake a critical analysis, evaluation and synthesis of ideas, concepts, information and issues common to the design of immersive systems

Communication, ICT and Numeracy

- Evaluate and present complex arguments, information and ideas routine to immersive system related disciplines to a range of audiences and purposes
- Communicate routine and complex ideas, information and work comprehensibly in visual, oral and written forms

Autonomy, Accountability and Working with Others

- Exercise autonomy, initiative and independence in carrying out set project briefs
- Practise Immersive Systems development in ways that show awareness of own and others' roles, responsibilities and contributions when carrying out and evaluating tasks

12.3 Intended Learning Outcomes of Year 3

Knowledge and Understanding

- Demonstrate through practice specialist and up-to-date knowledge embedded in the main theories, concepts and principles of immersion and interactive experiential systems (e.g. software architectures, Interactive audio Visual)
- Demonstrate knowledge of appropriate methods and metrics to validate the user experience and demonstrate a critical knowledge and understanding of a range of professional and ethical issues in computing and immersive systems

Practice: Applied Knowledge and Understanding

- Create immersive systems using advanced features of 3D game engines involving a wider set of technologies and a range of techniques for animation
- Apply knowledge, skills and understanding in 3D interactive visualisations (online/stand-alone) and gather user data within professional level contexts
- Conceptualise interactivity for immersive experiential outputs using a few skills and techniques that are specialised and/or advanced
- Apply knowledge to the conceptual and practical development of an interactive AV experience or environment

Generic Cognitive Skills

- Identify and analyse routine professional problems and issues around ethics and professional practice

Communication, ICT and Numeracy
- Present and convey, formally and informally, an immersive system project (i.e. game, Audio visual) to a range of audiences
- Present formally and informally their own experience and portfolio in forms suitable to discipline, to a range of audiences, using a range of ICT applications to support and enhance this work

Autonomy, Accountability and Working with Others
- Exercise autonomy and initiative in developing complex immersive systems (e.g. planning, organisation, management, communication) and formulate technological solutions for specified domain applications
- Present and convey formally and informally complex ideas, information and work comprehensibly in visual, oral and written forms

12.4 Intended Learning Outcomes of Year 4

Knowledge and Understanding
- Demonstrate knowledge and critical understanding of the ways in which the Immersive Systems discipline is developed (in professional and/or academic settings, theories, concepts, principles)
- Demonstrate a detailed knowledge and understanding of the chosen specialism and its evolution and development
- Demonstrate an ability to exercise autonomy and initiative in planning and undertaking a substantial piece of individual work relevant to chosen specialist pathway

Practice: Applied Knowledge and Understanding
- Apply knowledge, skills and understanding in conducting a focused research investigation
- Apply knowledge and understanding at the forefront of their chosen pathway specialism in the development of immersive systems (i.e. practices, tools)
- Apply knowledge, skills and understanding in executing a defined project involving research, development and/or investigation in immersive systems within professional level contexts

Generic Cognitive Skills
- Critically review, identify, define, conceptualise and consolidate own knowledge, skills, practices and thinking in the Immersive Systems discipline and in a chosen specialism
- Demonstrate some originality and creativity in cross-pollinating technical and conceptual knowledge/practice in a studio environment

Communication, ICT and Numeracy
- Present and convey professionally and informally complex ideas, information and work comprehensibly in visual, oral and written forms to support the management and development of immersive systems.
- Present a dissertation, together with implemented software or other materials, and appropriate documentation, in a suitable academic format

Autonomy, Accountability and Working with Others
- Exercise autonomy and initiative in developing complex immersive systems (e.g. planning, organisation, management, communication)

- Practice in ways that show awareness of own and others' roles and responsibilities (i.e. collaborative work, peer-mentoring, management, studio resources)

13. Learning and Teaching Approaches:

Students will be expected to take increasing responsibility for the management of their learning over the duration of the programme, with emphasis will be placed on developing and achieving self-reliance over the four years.

Courses and projects will be undertaken by directed and self-directed study, and will involve lectures, labs, tutorials, workshops, practical sessions, guest lectures, and independent research.

Self-directed Learning and Research
As students progress through the degree, increasing emphasis in the programme is placed on self-directed study, from project design and development, to gaining theoretical knowledge through traditional research methods. This is further developed by the focus upon pathway specialism, which emphasises autonomy, reflection upon personal learning and self-directed project work (especially in the final honours project) within a collaborative environment.

Lectures
Lectures and seminars are used to disseminate theoretical, contextual and historical knowledge and address specific issues underpinning practical work. Lectures also have the broad aim of generating further debate in seminars, tutorials or further enquiry in self-directed learning or research.

Labs, Tutorials, Workshops, and Practical sessions
Labs, workshops and practicals provide students with hands-on experience in lab sessions. These sessions usually follow or relate to lectures, and take place in computer laboratories as practical classes. Lecturers/Demonstrators will be on-hand during the sessions to help students and answer their questions. Tutorials vary between individual student-tutor tutorials, group tutorials and workshops. These provide opportunities for scaffolded problem solving and discussion, and for broader discussion of the programme themes and topics.

Guest Speakers
Input from visiting lecturers and guest speakers will enable visualisation students access to, and understanding of, relevant contemporary practice, research and commercial contexts.

GameJams/Hackathons
A Hackathon or GameJam is an event in which computer programmers and other developers collaborate intensively on a project to a set brief or theme intensively for a set period of time (e.g. 24 or 48 hours).

Supervised GameJams/Hackathons provide Immersive Systems students with thematic technology focussed exercises where students work in groups to engage intensively in game or interactive technology development.

Exchanges and Placements
In line with the Glasgow School of Art internationalisation strategy, we intend to enhance curriculum and learning opportunities in ways which enable students and graduates to operate effectively in international and global contexts. We can do this by creating programme

opportunities and support mechanisms for international projects for students which build on international partnerships.

There is also the opportunity to explore international internship opportunities for students. We intend to develop, refine and strengthen international collaborative educational partnerships in order to deepen transcultural understanding, promote opportunities for students and staff and enhance the international reputation of the School. We could do this by establishing academic staff exchange as a core feature of key international partnerships and consolidating existing partnerships and recruitment potential.

We will continue to develop and provide appropriate support for an increasingly culturally diverse community of students and staff in order to enhance the educational experience of all students.

14. Assessment Methods:

Formative and summative assessment strategies are employed through the programme. Formative and summative assessment feedback operates to guide students in improving their work, including interpersonal skills, formal presentation abilities, professional practice and academic writing and research.

Engagement with formative assessment is a mandatory requirement.

Students will normally be assessed on the submission and presentation of practical work set and on written work and verbal presentations. Each course will be examined against its specific Learning Outcomes as outlined in the curriculum section of the course document.

Summative assessments will principally comprise of project work, individual and group-based, and a range of written work. This written work will comprise of essays, reflective documents, log-books and role analyses/evaluations and a final dissertation.

In years 1 and 2 students will work primarily to provided briefs in the studio course. Year 3 will mix set and student-led briefs, while in year 4 in studio students will also create a range of work wholly according to self-directed student led goals. Studio 4 will include an extended piece of independent work to form the core of the student's practical portfolio of work. This work may be collaborative in nature, but each student in a collaboration must contribute in an individually attributable manner. Such collaborations might see students from different specialisms working together to complete a larger project than would be feasible working individually, and is intended to recreate an authentic digital studio experience.

15. Relevant QAA Subject Benchmark Statements and Other External or Internal Reference Points:

QAA Subject Benchmark Statements for Computing (2016)
https://www.qaa.ac.uk/docs/qaa/subject-benchmark-statements/sbs-computing-16.pdf?sfvrsn=26e1f781_12

British Computer Society Guidelines for programmes:
http://www.bcs.org/category/7066

The ACM IT 2008 Computing Curricula for Information Technology has also helped inform elements of the programme development: https://www.acm.org/binaries/content/assets/education/curricula-recommendations/it2008-curriculum.pdf

16. Additional Relevant Information:
N/A

THE GLASGOW SCHOOL OF ART	**Contingency Actions Pro Forma**

Programme Leader:	Dr Sandy Louchart
Programme Title:	BSc Immersive Systems Design
School:	School of Simulation and Visualisation (SimVis)

1. Summary of amendments to Programme Specification for 2021/22 as a result of COVID-19 and list of Academic activities affected:

Throughout academic year 2020/21 Covid-19 necessitated significant amounts of learning and teaching be conducted entirely remotely, with significantly limited access to teaching studios, specialist facilities and fieldwork, including periods of Government mandated closure of campus. As a digitally focussed school which had already embraced online learning technologies, the pivot to online and remote learning within The School of Simulation and Visualisation was successful, albeit still challenging.

For 2021/22, there has been very significant progress with vaccination in the UK and in reducing the spread of Covid-19. We accordingly anticipate that the coming year will see the return of a range of academic activities that were curtailed in 2020/21.

However, Covid-19 is still with us, and as such it remains necessary to keep in place contingencies for learning and teaching. These contingencies necessarily reflect a worst case scenario, where campus based activities again have to cease.

In the event of future campus closures, there would be, across the programme there will be a shift to blended and/or online learning and teaching to enable a safe environment for students and tutors. This is primarily a shift in the *mode of delivery*, rather than a change to programme or course aims or learning outcomes. Even without closures, there may be a need to reduce the amount of campus based teaching to enable and allow greater social distancing in taught activities. As part of this shift, SimVis tutors may adapt a flexible online delivery approach in which some contact hours will be replaced and complemented by a combination of asynchronous and synchronous activities and reviews. Over AY 2020-21 staff have developed experience with a range of online tools and approaches for promoting engagement in learning across synchronous and asynchronous learning activities, and we will build on this in the coming year.

Due to the digital nature of the BSc Immersive Systems Design programme, tutors do not envisage changes to group work. There are, however, some specific changes that need noted in relation to amendments that may be required as a result of Covid-19.

Additional outdoor learning activities may also be introduced into the curriculum. If necessary, online support will be extended to allow students unable to attend in Glasgow in person to complete the first semester (or part of the semester) in a purely online mode if required, with alternatives in place for in-person activities that will be taking place.These amendments are *contingencies*, and should the Scottish Government advice & GSA Health & Safety measures allow with sufficient time for implementation, teaching, learning and assessment will revert to the specification. Of particular concern and interest are the H&S measures for access to equipment and to specialist equipment such as Virtual Reality Head Mounted Display (HMD), VR and motion capture suites, and physical computing hardware.

Specific Course and Programme measures:

Physical Computing: It might be technically difficult to support students in building a physical interaction remotely. However, SimVis tutors can make use of emulators that can be used online in order to replicate physical behaviours virtually through a browser. As such physical computing learning outcomes will be met, although virtual rather than physical.
Virtual Reality: A range of indicative content and ILOs for Studio and Immersive Systems courses (Year 1-3) relate to aspects of Virtual Reality and specialist equipment. The use of VR equipment will be dependent on the wider circumstances surrounding higher education and distancing rules. Should students not be able to be present on campus or be allowed to use the VR equipment (for health and safety reasons), SimVis tutors will ensure that students are taught how to configure projects for a VR deployment (i.e mobile devices) and will be given the opportunity to test and revisit VR project in a dedicated showcase when it is safe to do so.
Motion Capture: Students will be taught the fundamentals of motion capture and provided with motion data in order to achieve the intended learning outcomes and indicative content for this course. Students will be provided with the opportunity to collect motion data when it is safe to do so later during their studies.

In addition to the programme specification the **COVID-19 Response Student Guide** outlines the overarching principles the GSA has established to ensure that in the current COVID-19 context, learning remains the priority and is adapted in the light of changes to the public health demands resulting from the pandemic. You can read the guide here.

2. Details and outcomes of consultation with students regarding the changes detailed in question 1:

Amendments to teaching in AY 2020-21 were generally positively received, and good feedback was received overall from students across the year. At the final school forum in Semester 2, the key issue raised was around ensuring good communication of assessment requirements and of any changes to assessments, and discussion was held on strategies for improving this.

Contingency pro-forma were distributed to all class reps for consideration and discussion, with verbal feedback from lead UG rep at Board of Studies. The lead UG representative has also prepared the following comment:

"Students have been very pleased with increased communication and transparency across the department and are grateful for both the efforts from the staff and their willingness to accommodate our requests and needs as best they can. Considering current attitudes of students, the contingency plan seems adequate as long as the department continues their ongoing work in promoting open formats for students to express their views. The changes across the 2020/21 academic year show an innate understanding of the students' needs, and ample measures taken in facilitating said needs in unforeseen circumstances."

3. Details of consultation with External Examiners and PSRBs regarding the changes detailed in question 1:

This form was sent to external examiner for review.
The external examiner provded the following comment:

- Fully support the move to blended learning, gives flexibility for the course team to develop their content for an engaging experience depending on the context (face to face or remote)
- From an institutional stand point, please don't mandate a 'GSA model' of blended delivery, devolve this down to Schools or Departments to decide on the model that best fits their course.
- One suggestion is to have one consistent messaging platform for the whole dept (Teams, Discord, Slack etc)
- Specific Course measures:
    - Fully support these measures
    - Virtual Reality: Could hardware loans be used here? If not, perhaps shift away from VR to AR/XR with mobile devices?
- Provide a base line of online collaboration tools and practices for modules across the programme. E.g. Miro/Canvas with minimum requirements

4. Details of how the changes detailed in question 1 meet the requirements of the Public Sector Equality Duty and how any potential for negative impact for students from protected characteristic groups has been or will be mitigated.
The principle change across all courses are changes to the contact hours and method of delivery to support *blended learning delivery* as a result of Covid-19 and the need for social distancing. A significant number of in-person contact hours are being replaced with a mixture of online asynchronous (e.g. readings, activities, videos, forum based discussions) or synchronous (virtual classroom, zoom, tutorial) activities. In relation to individuals with protected characteristics, there may be some with specific learning or anxiety related issues who may find this reduced personal contact challenging. This will be mitigated with online synchronous and asynchronous tutorial activities. Video materials will be captioned wherever possible – initially using automatic captioning, with manual editing and corrections applied at a later date. We also note that in relation to individuals with learning related challenges, these changes may bring some benefits, e.g.: • Provision of online materials video material is supportive for students with a range of learning issues • Automatic captioning/manual captioning • Online learning reduced challenges for students with mobility related issues SimVis tutors have discussed flexible and adaptable software solutions in order to meet ILOs and indicative content objectives through resources available to students. As such, software related submissions will not be restricted to specific software files but standard file types commonly produced by a range of software solutions. This action will allow students to deliver and progress on the programme through the use of open-source (free) software solutions.

Name of Convenor of Board of Studies:	Prof Paul Chapman
Date of Board of Studies Approval:	06/05/2021
Name of Convenor of PACAAG:	Vicky Gunn
Date of PACAAG Approval:	01.06.21

Following approval by Board of Studies and PACAAG, the pro forma will be published with the Programme Specification as an addendum.