School of Systems Engineering

Assessed Coursework Assignment Brief

Module code: **SE3VR11**

Lecturer responsible: **Prof Richard Mitchell**

Coursework description: **Task 2 - Immersive Virtual Environment**

Work to be submitted on-line via Blackboard by 10:30 am on: March 18th 2016

Work will be marked and feedback returned by: Apr 11th 2016

This coursework should be submitted on-line through Blackboard Learn.

You should submit a compressed ZIP file of your Group's working Unity.exe, the associated _Data folder with its appropriate files and the word document specified below.

In addition, you should submit a brief report (detailed below) on your individual contribution.

NOTES:

By submitting this work you are certifying that it is all your own work and that use of material from other sources has been properly and fully acknowledged in the text. You are also confirming that you have read and understood the University's Statement of Academic Misconduct, available on the University web-pages.

If your work is submitted after the deadline, *10%* of the maximum possible mark will be deducted for *each* working day (or part of) it is late. A mark of zero will be awarded if your work is submitted more than 5 working days late. You are strongly recommended to submit work by the deadline as a late submission on one piece of work can impact on other work.

If you believe that you have a valid reason for failing to meet a deadline then you should complete an Extenuating Circumstances form and submit it to the Student Information Centre *before* the deadline, or as soon as is practicable afterwards, explaining why.

MARKING CRITERIA

This assignment is worth 75% of the marks for the whole coursework, the report and the associated individual work is worth 45% and the group simulation is worth 30%

The table below shows the mark scheme for the Group Assessment

Part of Submission	**Marks available**
Interactivity (Intuitive, Simple),	20
User Experience (Immersion & Presence),	20
Design (Realism Vs Believability)	20
Purpose (Application & Functionality)	20
Originality	10
Documentation	10

The table below shows the mark scheme for the Individual Report if you follow the suggested structure (see later for more details on the report).

Part of Submission	**Marks available**
Introduction	10
Background/ Motivation	20
Design/Requirements Analysis	20
Testing	10
Results	10
Discussion	10
Conclusion	10
Further Work	10

ASSIGNMENT DETAILS

This task is to be undertaken in groups of 5 or 6 people, but although you are working as a group, it is important that each member has a specific task to do – which you will write up individually as a short report.

You should first meet with your group and decide what you are going to build. It doesn't matter what your simulation is intended to do; it could be an immersive TV game show experience or therapy system to cure a phobia of cartoon characters; an education tool for visualising and exploring something; a detailed model of interacting robots (I would be particularly interested in models of the ERIC robot used in the Begin Robotics MOOC, or a Rover such as used in the Cyber Challenge). The key point is the simulation should be designed with a definite purpose in mind.

You will be expected to be able to demonstrate your knowledge of the core Virtual Reality concepts which are covered in the course. In particular, 'human' concepts such as: realism, believability and usability, and technical concepts such as: lighting, physics/animation and geometry. Remember, the purpose is not to create a photorealistic animation, but to use the tools available to create an interactive, believable simulation.

You should try to consider the following design goals in both your group project and the final report: Interactivity (Intuitive, Simple), User Experience (Immersion & Presence), Design (Realism Vs Believability), Purpose (Application & Functionality)

Once you have a plan, assign different responsibilities to each member and agree a timeline. You will need to work closely to ensure the different aspects work properly together.

The overall project will typically be achieved using a variety of products, but coordinated with Unity. So for instance detailed models of the environment or characters imported into it could be built with Blender, Maya or SolidWorks, or similar.

The final program should be submitted in a ZIP file containing the Unity application, the associated folder with relevant files, and a single sheet listing the project members, describing the simulation, its goal and instructions to the user.

The Individual Report

The Individual report, which should be no more than 1500 words, excluding references and diagrams, should describe your individual contribution to the project, saying what you have done and why, and how you have attempted to incorporate different virtual reality concepts.

The following is a suggested structure for your report. There may be other relevant sections depending on your particular project. The mark scheme above assumes this structure but will be adapted if necessary.

Introduction:
Introduce the report; give the structure and a summary of the project and the sections to follow.
Consider: Group work & individual assignment, design choices, challenges, novel work, outcomes.

Background/Motivation:
Set the scene; provide necessary background for the reader to understand the project.
Consider: What, why, how. What does this work build on (your previous assignments? Other work in the academic literature?), related work.

Design/Requirements Analysis:
You didn't just randomly throw things together (hopefully), there was a coherent plan behind your strategy which involved considering the problem carefully and designing your environment/ interaction to solve the problem.

Testing:
How do you know if your solution is effective? How did you establish this, did you have a testing plan, a table of requirements and necessary functionality? Did you get impartial subjects to try the system and report on their experience?

Results:
This is only a small project but you still have plenty of results to discuss. Which aspects of your design did you meet (based on your test criteria), which need work?

Discussion:
Brief discussion on the results.

Conclusion:
Consider: Critically evaluate your work (as a whole and on your personal contribution), what was achieved, what were the problems and challenges, what has been learnt. A good conclusion reflects on the questions posed at the start of the project and attempts to provide and answer.

Further Work:
Here you can describe where you would take this simulation given sufficient time and resources, how you would improve it and what it might be used for. Show that you are aware of the limitations, both what you have developed and hardware and software available to you.