MCAST
Malta College of Arts, Science & Technology

Assignment Cover Sheet

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Please read carefully

- This assignment sheet is to be returned back to the lecturer by the student with the completed work. Work handed in after the deadline date will be penalized.
- Students caught copying from other students or plagiarizing (copying from lecturers' notes, handouts, slides, internet, books or any other printed or digital media) will be disqualified and will get a REFERRAL for their assignment or a FAIL if it is the last resit.
- An assessor has the right to ask the student to attend an interview without prior notice if the assessor wishes to confirm that the work submitted has been clearly understood by the student.
- It is the students' responsibility to keep a copy of the assignment for revision.
- This refers ONLY to Level 4 Year 1 students - All resubmissions must be authorised by the Lead Internal Verifier. Only one resubmission is possible per assignment providing that the the learner has met initial deadlines set in the assignment or has met an agreed deadline extension. Moreover, the tutor considers that the learner will be able to provide improved evidence without further guidance. Finally evidence submitted for assessment has been authenticated and accompanied by a signed and dated declaration of authenticity by the learner. **Any resubmission evidence must be submitted within 10 working days of receipt of results of assessment.

Student's Name	**Stephen Delicata**				
Programme	**MCAST BSc. Multimedia Year 2**			Academic Year	**2016/2017**
Assessor's Name	**Christopher Cassar**			Group/s	**IT-MSD-6.2A**
Unit No	**9**	Unit Name	**3D Graphics**		
Assignment No	**2**	Sit	**First Sit**	Type	**Home**
Assignment Title	**Assignment 2**				
Issue Date		Deadline Date		Date returned to students	
Assignment IV	**Paul Pulis**		Date	**06 Jun 2017**	

Pass Assessment Criteria			Merit Assessment Criteria			Distinction Assessment Criteria		
Criteria	Met	Not Met	Criteria	Met	Not Met	Criteria	Met	Not Met
Unit 9-VE : P4.1			Unit 9-VE : M2.2			Unit 9-VE : D2.3		
			Unit 9-VE : M2.5			Unit 9-VE : D3.4		
			Unit 9-VE : M3.3			Unit 9-VE : D4.2		

Note : Computation of final grade for the unit will take into consideration each individual outcome as per assessment criteria.

(C*) denotes that the criteria was carried from a previous sit.

Assignment Status	

Assessment Criteria Description	
Unit 9-VE : P4.1	KU7 Show knowledge of how the 3d project was developed
Unit 9-VE : M2.2	AA2 Demonstrate knowledge and use of Generate Modifiers
Unit 9-VE : M2.5	AA3 Make appropriate use of modelling tools in a 3D model.
Unit 9-VE : M3.3	AA5 Apply appropriate lighting to a scene
Unit 9-VE : D2.3	SE1 Justify the use of Generate Modifiers in the current context
Unit 9-VE : D3.4	SE2 Synthesize 3D models using specific texturing workflows
Unit 9-VE : D4.2	SE3 Develop a 3D project using specific techniques

Assessment Cover Sheet – Institute of ICT

Course Title	Multimedia Software Development	**Unit Number & Title**	IICT4001
Lecturer	Christopher Cassar	**Assignment Title**	3D Graphics & Visual Effects
Verified By	Paul Pulis	**Date**	17th May 2017
Date Set	24th May 2017	**Deadline Date**	12th June 2017
Class/Group	IT-MSD-6.2A	**Academic Year**	2016/2017
Student Name		**ID Number**	

Student's declaration prior to hand in

☐ I certify that the work submitted for this assignment is my own; and that I have read and understood MCAST/the College's copying and plagiarism policy.

Student's declaration on assessment special arrangements: LEAVE BLANK IF NOT APPLICABLE

☐ I certify that adequate support was given to me during the assignment through the Institute and/or the Inclusive Education Unit.

☐ I declare that I refused the special support offered by the Institute.

Student Signature		**Date**	

Assessment Parameters – 3D Graphics	**Maximum Mark**	**Marks Achieved**
KU4.1 Show knowledge of how the 3d project was developed	5	
AA2.2 Demonstrate knowledge and use of Generate Modifiers	7	
AA2.5 Make appropriate use of modelling tools in a 3D model.	7	
AA3.3 Apply appropriate lighting to a scene	7	
SE2.3 Justify the use of Generate Modifiers in the current context	10	
SE4.2 Develop a 3D project using specific techniques	10	
SE3.4 Synthesize 3D models using specific texturing workflows	10	
Total Marks	**56**	

Assessment Parameters – Visual Effects	Maximum Mark	Marks Achieved
KU1.1 Show knowledge of digital visual effects in a specific scenario	5	
KU1.2 Outline examples of digital visual effects	5	
KU1.3 Show knowledge of compositing techniques in a specific scenario	5	
KU1.4 Outline examples of compositing technique	5	
KU2.1 Describe different emerging technologies within the VFX design process	5	
KU2.2 Identify potential uses of emerging technologies	5	
KU2.3 Show the implications of using emerging technologies within the VFX design process	5	
AA3.1 Determine the visual effects required to resolve a design problem	7	
AA3.2 Sketch a storyboard on a given design problem	7	
AA3.3 Implement visual effects techniques to resolve a design problem	7	
AA3.4 Produce a simulated environment	7	
AA3.5 Modify a simulated environment to suit different platforms or devices	7	
SE3.6 Modify a design problem to make use of advanced VFX techniques	10	
SE4.1 Argue how innovative techniques were used in a VFX production	10	
SE4.2 Summarise how a VFX production contributes to novelty within digital media	10	
Total Marks	**100**	

Feedback			
Learner Signature		**Date**	
Assessor Signature		**Date**	
Internal Verifier		**Date**	

Verifier Comments			
Verifier Name		**Date**	
Verifier Signature			

Institute of Information and
Communication Technology

This assignment is combined of two modules: Visual Effects and 3D Graphics.
The assignment grades are split into two:

- 3D Graphics criteria carry 56 marks
- Visual Effects criteria carry 100 marks

KU criteria carry 5 marks each, AA criteria carry 7 marks each, while SE criteria carry 10 marks each.
The assignment should be handed in by **12th June 2017**.

All work should be saved and submitted on a pen-drive.
All original video footages / images should be saved on your pen-drive.
Provide all working files, saved and organised appropriately. Files with missing links <u>will not be</u> accepted.

This assignment abides by the rules of MCAST class assignments.

MAY 2017

VERSION 1.0

Scenario

Since thousands' of years ago, Malta has been an attraction to military basis given its strategic position. It also carries with it the mystical legend of the underwater world of Atlantis. This legend has now came to an end as it has been invaded by these unknown creatures to mankind – possibly related to Atlantis. Buildings destroyed, the land has become deserted, and the beautiful sun that it once had, has gone dim. Aliens are now ruling the island and the very few mankind who survived are now powerless.

Task 0 – Research & Theory

VFX.KU1.2 Outline examples of digital visual effects

Give **two** examples of how visual effects have been applied in today's world and outline which technique/s have been used.

VFX.KU2.1 Describe different emerging technologies within the VFX design process

VFX.KU2.2 Identify potential uses of emerging technologies

VFX.KU2.3 Show the implications of using emerging technologies within the VFX design process

VFX.SE4.2 Summarise how a VFX production contributes to novelty within digital media

a. Research and describe two of the following emerging technologies which could have an impact on the VFX design process: Richoh Theta, 3DXchange, 123D Catch, X-cam, Mocap Plugin. [2.5 marks each]
b. Think and identify **one** potential use **for each** technology that you've described above. [2.5 marks each]
c. What impact could these have on today's society? How could these tools aide people in today's world? [2.5 marks / identified use]
d. In not less than 200 words, describe how VFX are contributing to the creation of new devices and applications. Substantiate your answers by giving examples of at least **two** projects planned for the near future or which have just kickstarted. [10 marks]

Task 1 – Storyboard

VFX.AA3.2 Sketch a storyboard on a given design problem

In this section, you are required to create a storyboard for the given scenario. A short description with each storyboard is required. You may make use of the following website to create a storyboard: www.storyboardthat.com.

P.T.O

Task 2 – Preparing your 3D model

3D Model

3D.AA2.5 Make appropriate use of modelling tools in a 3D model.

Carefully read the given scenario, and then build a 3D model of a spaceship / UFO, which will be used at a later stage within your composition in After Effects. Before you start modelling your 3D object, you are required to provide a reference image for approval. Upload the reference image on the link provided by your lecturer and check that no one else has uploaded the same image before you. Each reference image should be unique. If no reference image is uploaded, it is expected that one creates his own 3D object, which then must then be accepted by your lecturer.

Modifiers

3D.AA2.2 Demonstrate knowledge and use of Generate Modifiers

You are required to make use of at least **three** Generate Modifiers, such as, Solidify, Subdivision Surface, Mirror etc. Inappropriate use of these tools, simply used to meet the criteria will not be accepted.

3D.SE2.3 Justify the use of Generate Modifiers in the current context

Justify the use of at least **two** Generate Modifiers in your project. Use screenshots of your work to complement your explanation.

Material and Texturing

3D.SE3.4 Synthesize 3D models using specific texturing workflows

Materials should make use of appropriate texturing techniques.

You are therefore required to use:

a) Create realistic textures using cycles rendering engine
b) Normal Mapping techniques

Follow the suggested viewing in your 3D Graphics notes to better understand what makes textures and lighting realistic.

Task 3 – Setting up the scene

VFX.KU1.3 Show knowledge of compositing techniques in a specific scenario

You are required to:

Create, one scene, using matte painting techniques for the given scenario. The rest of the scenes do not require to be matte painted, however, of course should be related to the scenario and continuous for the whole duration of the final composition.

Note: The total length of the final composition should be between **10s and 30s long.**

NB: It is important that your final composition appears realistic. Specific attention should be given to lighting and colourisation.

VFX.KU1.4 Outline examples of compositing technique

Document and outline the compositing techniques used in KU1.3. Add this documentation to your final presentation in Task 6.

3D.AA3.3 Apply appropriate lighting to a scene

Apply appropriate lighting to the scene:

a) Shadows should appear in the right direction matching your video composition
b) Lighting should appear realistic
c) Make use of lamps, environment light and light emitting objects

Follow the suggested viewing in your 3D Graphics notes to better understand what makes textures and lighting realistic.

P.T.O

Task 4 – Adding Visual Effects

VFX.AA3.3 Implement visual effects techniques to resolve a design problem

VFX.AA3.1 Determine the visual effects required to resolve a design problem

Import the 3D model that has been prepared in Task 2 (see Task 5 too) and composite it within the rest of the scene created earlier in KU1.3.

You should make use of at least **three** of the following techniques:

***NB:** The section contains 7 marks – choose any combination from 'a' to 'h' below to gather a maximum of 7 marks.*

a) Advanced Keying [3 marks]
b) Masking [2 marks]
c) Rotoscoping [3 marks]
d) Time Remapping [1 mark]
e) Effects [1 mark]
f) Animating Text [1 mark]
g) Animating Layers [1 mark]
h) Distorting Objects with 'Puppet' tool [1 mark]

Within your presentation, document which VFX techniques have been used to satisfy your requirements. Use screenshots to showcase the before and after images of a scene in your presentation in Task 6.

VFX.SE3.6 Modify a design problem to make use of advanced VFX techniques

Enhance and animate your 3D model in After Effects, by producing at least **two** advanced visual effects, such as, but not limited to: explosions, dust, fog, light rays, animating a still. [5 marks each]

Task 5 – Virtual Reality

VFX.AA3.4 Produce a simulated environment

You are required to produce 3D model of your spaceship / UFO cabin's interior. At this stage, you may make use of library items (imported 3D models).

You may wish to render a short animation / scene which may be used in conjunction with Task 3 & 4.

3D.SE4.2 Develop a 3D project using specific techniques

After completing your cabin's interior 3D model, make use of specific techniques in Blender or other programs such as Sketchfab to implement a 360° virtual reality tour. The final outcome should be compatible with a VR headset / Google Cardboard.

Task 6 – Presenting your work

VFX.AA3.5 Modify a simulated environment to suit different platforms or devices

Combine the 3D models created with the video footage created earlier in After Effects.

Add some music and sound effects to your scene.

Upload your final rendered composition on YouTube / any other video hosting and provide a link (shortcut format) in your pen-drive.

3D.KU4.1 Show knowledge of how the 3d project was developed

VFX.KU1.1 Show knowledge of digital visual effects in a specific scenario

You are required to sit for an interview with your examiner to demonstrate your work. A time-lapse video and / or a detailed power-point presentation is required for you to present your workflow to build this project.

VFX.SE4.1 Argue how innovative techniques were used in a VFX production

An extensive set of questions will be asked during your interview, where you may be required to give a detailed explanation about the advanced techniques used, such as, but not limited to camera tracking.

Marking Scheme

Note: Unless specified, no marks will be awarded for partially correct answers or sub-tasks.

3D Graphics Criteria

KU 4.1 Show knowledge of how the 3D project was developed		
	Marks	**Achieved**
Interview	3	
Presentation	2	
Total	**5**	

AA 2.2 Demonstrate knowledge and use of Generate Modifiers		
3 Generate Modifiers were used:	**Marks**	**Achieved**
Generate modifier 1	7	
Generate modifier 2		
Generate modifier 3		
Total	**7**	

AA 2.5 Make appropriate use of modelling tools in a 3D model.		
	Marks	**Achieved**
UFO 3D model	7	
Total	**7**	

AA 3.3 Apply appropriate lighting to a scene		
	Marks	**Achieved**
Shadows should appear in the right direction matching your video composition	7	
Lighting should be realistic		
Make use of lamps, environment light and light emitting objects		
Total	**7**	

SE 2.3 Justify the use of Generate Modifiers in the current context		
	Marks	**Achieved**
Justification 1	5	
Justification 2	5	
Total	**10**	

SE 4.2 Develop a 3D project using specific techniques		
	Marks	**Achieved**
Create a Virtual Reality	10	
Total	**10**	

SE 3.4 Synthesize 3D models using specific texturing workflows		
	Marks	**Achieved**
Create realistic textures using cycles rendering engine	5	
Normal Mapping techniques	5	
Total	**10**	

Visual Effects Criteria

KU 1.1 Show knowledge of digital visual effects in a specific scenario		
	Marks	**Achieved**
Interview	3	
Presentation	2	
Total	**5**	

KU 1.2 Outline examples of digital visual effects		
	Marks	**Achieved**
Example 1	2.5	
Example 2	2.5	
Total	**5**	

KU 1.3 Show knowledge of compositing techniques in a specific scenario		
	Marks	**Achieved**
Create a scene, using matte painting techniques	5	
Total	**5**	

KU 1.4 Outline examples of compositing technique		
	Marks	**Achieved**
Outline compositing techniques used within your presentation	5	
Total	**5**	

KU 2.1 Describe different emerging technologies within		
	Marks	**Achieved**
Description of Technology 1	2.5	
Description of Technology 2	2.5	
Total	**5**	

KU 2.2 Identify potential uses of emerging technologies		
	Marks	**Achieved**
Potential use of Technology 1	2.5	
Potential use of Technology 2	2.5	
Total	**5**	

KU 2.3 Show the implications of using emerging technologies within the VFX design process		
	Marks	**Achieved**
How to aide people – Technology 1	2.5	
How to aide people – Technology 2	2.5	
Total	**5**	

AA 3.1 Determine the visual effects required to resolve a design problem		
	Marks	**Achieved**
Present VFX techniques	7	
Total	**7**	
AA 3.2 Sketch a storyboard on a given design problem		
	Marks	**Achieved**
Design a storyboard related to scenario	7	
Total	**7**	

AA 3.3 Implement visual effects techniques to resolve a design problem		
	Marks	**Achieved**
Advanced Keying [3 marks] Masking [2 marks] Rotoscoping [3 marks] Time Remapping [1 mark] Effects [1 mark] Animating Text [1 mark] Animating Layers [1 mark] Distorting Objects with 'Puppet' tool [1 mark]	7	
Total	**7**	

AA 3.4 Produce a simulated environment		
	Marks	**Achieved**
Create interior of UFO	7	
Total	**7**	

AA 3.5 Modify a simulated environment to suit different platforms or devices		
	Marks	**Achieved**
Upload final composition	7	
Total	**7**	

SE 3.6 Modify a design problem to make use of advanced VFX techniques		
	Marks	**Achieved**
Enhanced VFX 1	5	
Enhanced VFX 2	5	
Total	**10**	

SE 4.1 Argue how innovative techniques were used in a VFX production		
	Marks	**Achieved**
Show extensive knowledge during your interview – partial marks may be awarded if the student has not successfully answered all questions.	10	
Total	**10**	

SE 4.2 Summarise how a VFX production contributes to novelty within digital media		
	Marks	**Achieved**
Real life project 1 – VFX	5	
Real life project 2 – VFX	5	
Total	**10**	