ASSESSMENT AND INTERNAL VERIFICATION FRONT SHEET (Individual Criteria)

Course Title	Advanced Diploma			Lecturer Name & Surname	NEIL AQUILINA
Unit Number & Title	Programming for Computer Games				
Assignment Number, Title / Type	Research and Design – Home (24 Hours)				
Date Set	18/12/2020	Deadline Date	19/12/2020		
Student Name	Ayrton Ciangura	ID Number	361402L	Class / Group	MSD-4.2A

☐	*Student's declaration prior to handing-in of assignment:* ❖ *I certify that the work submitted for this assignment is my own and that I have read and understood the respective Plagiarism Policy*
☐ ☐	***Student's declaration on assessment special arrangements (Tick only if 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 Criteria	Maximum Mark	Mark Achieved
KU1: Identify and describe different game engines for different tasks	5	
KU3: Describe file types for media assets	5	
KU4: State the relevance of compression settings in media assets	5	
SE1: Design and specify the details of the game to be developed, including a state machine	10	
Total Mark	25	

Assessor's feedback to student

(If necessary, use reverse side of page for IV feedback on assignment brief / sample of assessment decisions)

Unit: IICT4016 - Programming for Computer Games

Home Assignment 1 : Research and Design (24 hours)

Task 1: Game Engines (KU1)

1 Unity

- C++ is used as the programming language
- Pokemon Go is a game programmed using Unity
- Unity is both a 2D and a 3D game engine

2 IW Engine

- C++ is used as the programming language
- Call of Duty is a game programmed using IW Engine
- IW Engine is a 3D game engine

3 LWJGL 2 (Light Weight Java Game Library 2)

- Java is used as the programming language
- Minecraft is a game programmed using LWJGL 2
- LWJGL 2 is a 3D game engine

4 Panda3D

- C++ and Python are used as the programming languages
- Pirates of The Carribean Online is a game programmed using Panda3D
- Panda3D is a 3D game engine

5 Frostbite

- C++ is used as the programming language
- FIFA is a game programmed using Panda3D
- Frostbite is a 3D game engine

Task 2: File types for media assets (KU3)

a. **JPG** *(Joint Photographic Group)* image format is the most commonly used format to compress digital images. Infact it is used mostly in digital cameras, internet and different operating systems. The image's file size will be smaller than it was originally which makes it easier to upload on the internet.

   GIF *(Graphics Interchange Format)* image format is a very highly compressed format and has a limited colour palette. This is commonly used for images on the web. A GIF image can include a maximum of 256 colors. It also compresses without degrading the quality of the image.

   PNG *(Portable Network Graphics)* image format is compressed in a way that all the image information is restored when the file is decompressed during viewing. Besides making one colour transparent it can also control the degree of transparency which is also known as opacity.

b. **MP3** audio format is a digital audio which compresses and decompresses digitized sound. This method allows the loss of some frequencies during the encoding process. It diminishes the source file by removing parts of the original signal which are essentially inaudible.

   WAV audio format is known for its lossless sound quality. It stores the data in bulk and is coded with Pulse Coded Modulation. Most of the WAV files are uncompressed. The maximum limit of WAV file is up to 22KHz.

Task 3: Compression in Multimedia (KU4)

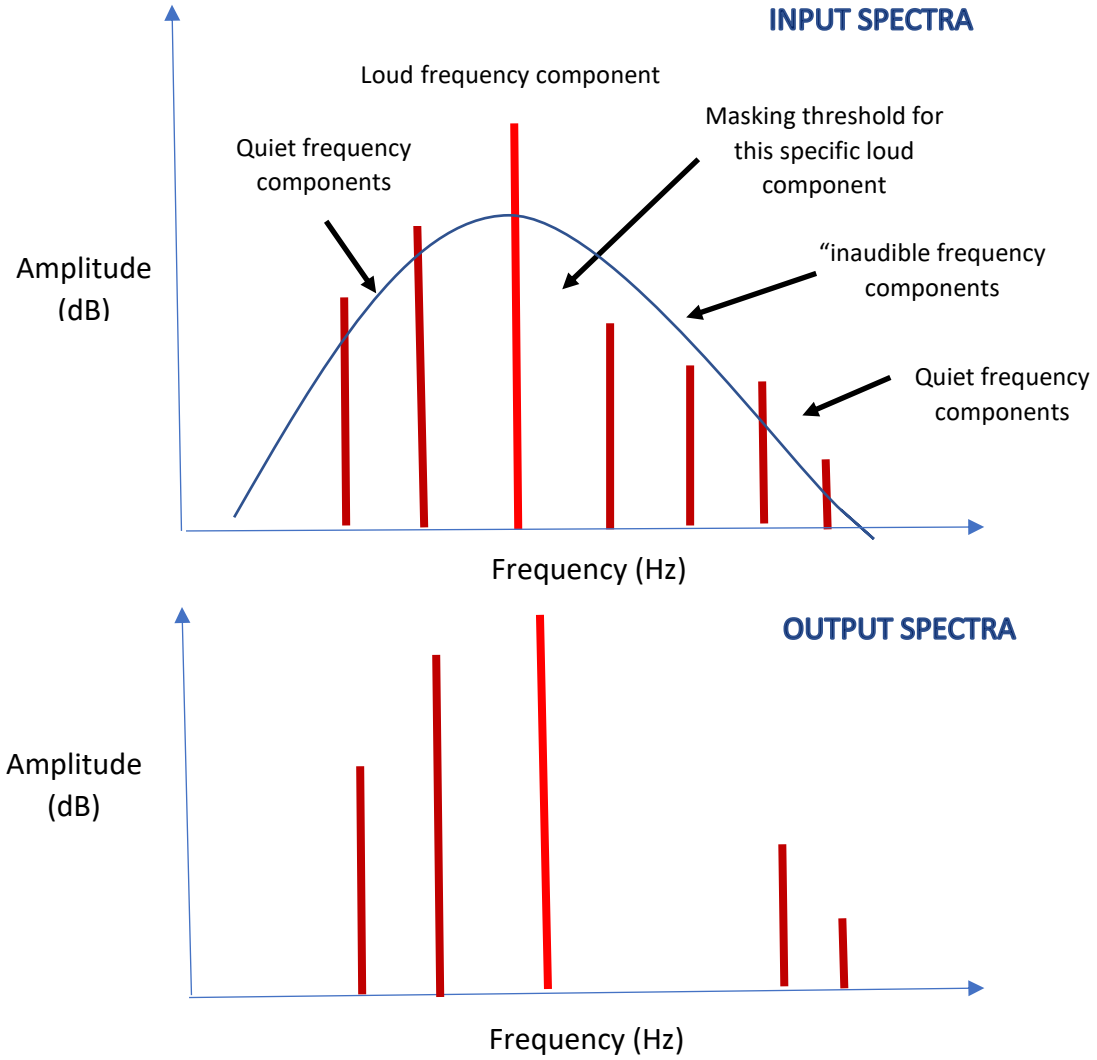
a. The importance of compression in images

The compression of images is important since it reduces the file size of the image which will take less space on the storage device whilst keeping the same physical size. The fact that it will be smaller in size, this will make the downloading and the uploading of the images from the internet in much less time. When compressing images a balance will be set between image size and image quality which will allow the image to still look good

while it can be uploaded faster but taking less storage space. As a result of this visitors will use less data when visiting the web page.

b. How compression in audio file works

First the incoming narrow bands of audio have to be windowed and analysed for frequency content. There will be different window lengths where the longer windows will consist of the current frequency content that is similar to adjacent content and shorter windows will consist of the current content that is less similar to, or different from, adjacent content. The shorter windows increase the temporal accuracy of the encoding but will lose the spectral resolution. The longer windows increase the spectral resolution but will lose temporal accuracy.



The above diagrams show the frequency content which is masked by louder contents is often discarded during the encoding process.