ASSESSMENT AND INTERNAL VERIFICATION FRONT SHEET (Individual Criteria)

(Note : This version is to be used for an assignment brief issued to students via Classter)

Course Title	MCAST Bachelor of Science (Honours) in Multimedia Software Development (IT6-03-19)		Lecturer Name & Surname	Kris Domancich	
Unit Number & Title	ITMSD-606-1610-Sound Engineering				
Assignment Number, Title / Type	Adaptive music project				
Date Set	6th March 2025	Deadline Date	27th March 2025[		
Student Name		ID Number		Class / Group	

Assessment Criteria	Maximum Mark
AA1.3 – Apply Equalisation filters using pillars and/or pre-sets	7
KU2.1 - Identify and report different sounds in a track.	5
KU3.3 - Distinguish/clarify the need of Audio or/and MIDI effects.	5
KU4.2 - Identify the role of interactive composition in dynamic music.	5
AA4.3 - Develop automation in an audio project.	7
SE4.4- Evaluate the use of proper sound dynamics within a context.	10
SE4.5 - Justify different techniques leant and present alternatives or improvements	10
KU1.1 – Explain track composition in digital application workstation	5
KU1.2 - Identify and order different sounds within the frequency spectrum.	5
KU1.4 - Examine parametric Equalisation within a context.	5
KU4.1 - Present a sound brief to explain an audio project within a gaming strategy.	5
AA2.2 - Apply routing processes between channels.	7
AA3.1 - Produce realistic sounds with the use of VSTs/Plug-ins.	7
AA3.4 - Investigate the use compressors/expanders within an audio track.	7
SE3.2 - Manage sound improvements and implementations within a context.	10
Total Mark	**100**

Notes to Students:

- This assignment brief has been approved and released by the Internal Verifier through Classter.
- Assessment marks and feedback by the lecturer will be available online via Classter (Http://mcast.classter.com) following release by the Internal Verifier
- Students submitting their assignment on Moodle/Unicheck will be requested to confirm online the following statements:

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

- ❖ 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.

Sound Engineering

Bachelors of Science (Hons.)

Adaptive music project

Assignment Guidelines

Read the following instructions carefully before you start the assignment. If you do not understand any of them, ask your lecturer.

- This assignment must be attempted by each **student and** all tasks should be completed **individually**. Note that it consists individual sections.
- Note that you must **submit your assignment via Moodle** using the assignment upload facility. You will need to upload a compressed (.zip) file with your name, surname and class.
- **Copying** and **plagiarism** are strictly **prohibited** and will be penalised in line with the **College's disciplinary procedures**. Any students caught copying during the exam will be disqualified immediately and corrective action will be taken in line with the college disciplinary procedures.

- Make sure you make use of both VLE and OneDrive for templates and samples to help you. You may also make use of third-party websites.

- Upload all material on VLE assignment upload facility when done.

- This assignment carries a total of **100%** of the overall unit.

Scenario

Your job in this assignment is to **create**, **document** and **implement** music and sounds for a casual game that will highlight both **music and sound interactivity** at different game phases. The game must target a particular platform that can be either **Mac** or **Windows**.

You will need to make use of the following software:

- Unity 2020.1 LTS or above
- Ableton Live 12 or above
- Fmod Studio 2.02.11 or above. (*required for the next part of assignment*)

It is under your responsibility that the software will work coherently, that is in a consistent manner (**no run-time errors that hinder the proper game functionality**). Note that you must fill in a project plan that is available in this assignment (**Section A)**. You are to upload this project plan attached as an answer to Section A below.

Two Ableton Live projects are required. The first project is for the adaptive backing music. The second project is for the in-game sound SFX used in your game

In this section, your main focus is the **adaptive backing music.** The Sections below describe in more detail the assignment requirements.

Section A – Project plan description (KU4.1)

Use the sound project plan template below to detail what nature of samples you intend to use for the game. You need to submit this template along with your assignment. A project plan template has been provided below. It includes a description of the type of game (adventure, strategy, action, board game, first person shooter etc...) you intend to create.

Below please find a template on how to provide planning information regarding the two Ableton Live projects.

Note also that you need to provide planning details on at least **4 music samples** and **6 game action samples** in your project plan.

Note that the template below provides example of how you should detail your sound planning. You are required to use **your own words**, otherwise marks will be lost.

At the last section of this sound project plan include a references section applying proper style referencing. This section consists of the name of the links used for the samples and their link reference, in the case of ready-made samples. This section will be handed in with your assignment submission.

Name and surname: _____Joe Borg_____

Brief Description: ____*This fps is the shoot them all kind of game in an imaginary world. The player has a total of three lives where he will be stationed in front of a prison gate to make it all the way up to the king's castle where he is to find hidden treasures. On the way to the castle the player will encounter zombies, looters, and military and castle guards. The player must also be careful not to let the looters enter the king's castle and find steal the treasures before the player does! Sound samples shall be used to immerse the player in the game hinting the enemy type that appears*. _____

Music BPM tempo _____110_____

Backing Music description

Sample/Clip 1: __*Main menu and title screen music* _____
Description:___*Ambient music that plays at static screens(menu) until the player starts the actual gameplay*_____

Sample/Clip 2: ___Exploring music_____
Description:____Actual gameplay. When player exits the prison and encounter the calm outside world_____

Sample/Clip 3: ____Chaotic music_____
Description:___Actual game play. A sense of chaos is felt, in preperation for a battle which might start at some point_____

Sample/Clip 4: ____Battle music_____
Description:____Actual conflict between player and zombies begins here_____

Game SFXs description

Sample 1: _____Gun fire_____

Description:____Bullet shots from fire arms available to the player to kill the zombies_____

Sample 2: _____Wolf howling_____

Description:____Wolf howling heard in the distant_____

Sample 3: ____Zombie hit_____

Description:___Zombie hit by bullet shots from player's firerm_____

Sample 4: ____Zombie death_____

Description:___Zombies dies after being hit three times from player's firearm_____

Sample 5: _____Player hit_____

Description:____Player is hit by enemy_____

Sample 6: _____Player death_____

Description:____Player dies after hit multiple times by enemy_____

KU4.1: Present a sound brief to explain an audio project	
Mark Obtained: **Inadequate Quality (0 marks):** Inconsistent information, plan does not reflect work done. **Lowest Quality (2 marks):** Not all samples/clips used in the project are described. Descriptions might not be appropriate. **Best Quality (5 marks):** All samples/clips appropriately described.	/5

Section B – Backing music template (KU1.1, KU1.2, AA3.1, SE3.2, KU2.1, AA1.3)

Create a project in Ableton Live using the convention **name_surname_class backing music.als**. Create channels and scenes as per question requirement below. **Note that you may answer questions in any order you like, however do label appropriately.**

Questions

1. Create a project with at least 4 scenes according to your template in section A. In the case of the template, the scenes will be named according for quick reference. For example Scene 1 will be renamed to "Main menu" , Scene 2 to "Exploring music" etc.. Use colour coding to differentiate from the different scenes. **(KU1.1)**

2. Differentiate between an audio channel, midi channel, and a return track. Write a paragraph on each making **clear** what their respective function is. You can provide examples to aid your explanation. **(KU1.1)**

3. Create a customized drum rack (**not ready-made in Ableton Live**). The drum rack must be made up of at least 4 percussion samples. Create drum midi clips as follows: **(KU1.2)**

    a. 2 different drum clips according to the scene (based on your sound brief in Section A)
    b. A drum break clip, which is **at least 2 beats long.**

c. Drum clips may be 1 measure long, however **one** of the clips needs to be at least 4 measures long.

4. Create a melody using a channel of your choice (midi or audio). The channel should contain the respective clip. The track should be properly quantized. **(SE3.2)**

5. Create a midi channel that will be used for a bass line. Use an instrument of your choice to create midi clip. Apply a bass line that follows the melody in question 4. The bass line should be properly quantized. **(SE3.2)**

6. Create a midi channel that will hold a VST instrument. Use the **full bucket fb3300** or the **U-he Tyrell N6** VST available on Moodle vle. **(AA3.1)**

   a. Apply a midi clips to this channel. You will need at least 2 different midi clips accordingly to be used for different scenes, as per sound brief.
   b. Make use of correct midi effects that will help make the backing track sound fuller.

7. Create a chord-filler channel. This channel contains an instrument such as keys, guitar or synth. It will contain a midi track **OR** an audio track that compliments the backing music. **(KU2.1)**
   a. This channel should be as long as the melody channel. **(1 mark)**
   b. Variations in chords should be noted to keep listener engaged. **(3 marks)**
   c. This clip/sample should be properly quantized. **(1 mark)**

8. Create another midi clip in another VST channel. Create a new patch in the **U-he Tyrell N6 VST** instrument to create the following: **(SE3.2)**
    a. Start with a new patch, and use the oscillator/mixer/filter and mod section to create a **useful** patch for your clip.
    b. Make use of the matrix/lfo/envelope sections to modulate the sound, save your patch. Make sure to add it in your Live project.
    c. A MAX-for-Live midi effect at certain segments or for the whole duration of the melody clip.

    Note that this clip must support the music in the scene.

9. Apply the following EQ filters in your drum rack: **(KU3.3)**
    a. Hi-pass filter **(2 mark)**
    b. Low-pass filter **(2 mark)**
    c. Band Pass filter **(3 marks)**

KU1.1: Explain track composition in a Digital Application Workstation.	
Mark Obtained: Question 1: (2 marks max) **Inadequate Quality (0 marks):** Inconsistent information. **Best Quality (2 marks):** Scenes created and correctly configured according to question. **Mark Obtained: Question 2: (3 marks max)** **Inadequate Quality (0 marks):** Inconsistent information. **Best Quality (3 marks)** Each channel clearly explained according to question	/5

KU1.2: Identify and order different sounds within the frequency spectrum.	
Mark Obtained: Question 3: (5 marks max) **Inadequate Quality (0 marks):** Inconsistent information. **Question 3A (2 marks):** Correctly answered according to question. **Question 3B (1 mark):** Correctly answered according to question. **Question 3C (2 marks):** Correctly answered according to question.	/5

AA3.1: Produce realistic sounds with the use of VSTs/Plug-ins.	
Mark Obtained: Question 6 **Inadequate Quality (0 marks):** Inconsistent information. **Low Quality (1 marks):** A VST has been properly hooked up and used. **Question 6A (3 marks):** Correctly answered according to question. **Question 6B (3marks):** Correctly answered according to question.	/7

SE3.2: Manage sound improvements and implementations within a context.	
Question 4: (2 marks max) **Inadequate Quality (0 marks):** Inconsistent information. **Best quality (2 marks):** Correctly answered according to question. **Question 5: (2 marks max)** **Inadequate Quality (0 marks):** Inconsistent information. **Best quality (2 marks):** Correctly answered according to question. **Question 8: (6 marks max)** **Inadequate Quality (0 marks):** Inconsistent information. **Question 8a (2 marks):** Correctly answered according to question. **Question 8b (2 marks):** Correctly answered according to question. **Question 8c (2 marks):** Correctly answered according to question.	/10

KU2.1: Identify and report different sounds in a track.	
Mark Obtained: Question 7: (5 marks max) **Inadequate Quality (0 marks):** Inconsistent information. **Question 7A (1 marks):** Correctly answered according to question. **Question 7B (3 mark):** Correctly answered according to question. **Question 7C (1 marks):** Correctly answered according to question.	/5

AA1.3: Apply Equalisation filters using pillars and pre-sets.	
Mark Obtained: Question 7: (5 marks max) **Inadequate Quality (0 marks):** Inconsistent information. **Question 9A (2 marks):** Correctly answered according to question. **Question 9B (2 mark):** Correctly answered according to question. **Question 9C (3 marks):** Correctly answered according to question.	/7

Section C – Audio/Midi effects for the backing music (KU1.4, AA2.2, AA3.4, KU3.3)

10. Make use of **subtractive EQ** for each channel in this project. Use an appropriate device to examine the overall EQ on the main mix. Make sure you use correct EQ filters as required per channel to avoid situations where instruments fight for the same frequency range. Use screenshots of the frequency spectrum to justify your final output. **(KU1.4)**

11. Create an arrangement for your backing music in this question using labels as appropriate per sound brief:
    a. Make use of a compressor and apply sidechaining on a channel of your choice. **(AA3.4)**
    b. Make use of at least three other audio effects in a context. Document the use of these effects and explain why they were necessary. **(AA3.4)**
    c. Make use of at least 4 effect automations in arrangement view. The automations need to be used in a context that makes sense. **(AA2.2)**
    d. Make use of two effects in return tracks. Apply return track signal chains in your channels. **(AA2.2)**
    e. Make sure that your overall mix is not peaking any further than -1db on your master track with its master fader position at 0 dbs. Use appropriate effects to avoid clipping and justify your answer. **(AA2.2)**

12. Make use of the **two** from the following effects in your project and **describe** your parameter modifications and its **usefulness** in the project: **(KU3.3)**
    a. Arpeggiator device
    b. Chord device
    c. Roar device
    d. AutoFilter

KU1.4: Examine parametric Equalisation within a context.	
Mark Obtained: Question 10 (5 marks max) **Inadequate Quality (0 marks):** Inconsistent information. **Lowest Quality (1 mark):** EQ used per channel. **Good Quality (3 marks):** Proper use of EQ filters per channel. **Best Quality (5 marks):** Good Quality and correct documentation provided,	/5

AA3.4: Investigate the use compressors/expanders within an audio track.	
Mark Obtained: Question11a, 11b(7 marks max) **Inadequate Quality (0 marks):** Inconsistent information. **Lowest Quality** (1 mark): Labels correctly provided as per sound brief. **Question 11a (2 marks):** Correctly answered according to question. **Question 11b (4 marks):** Correctly answered with documentation provided according to question.	/7

AA2.2: Apply routing processes between channels.	
Mark Obtained: Question 11c, 11d, 11e (7 marks max) **Inadequate Quality (0 marks):** Inconsistent information. **Question 11c (2 marks):** Correctly answered according to question. **Question 11d (1 marks):** Correctly answered with documentation provided according to question. **Question 11e (4 marks):** Correctly answered according to question with documentation provided to justify your answer.	/7

KU3.3: Distinguish/clarify the need of audio or/and MIDI effects.	
Mark Obtained: Question 12 (5 marks max) **Inadequate Quality (0 marks):** Inconsistent information. **Lowest Quality (1 mark):** One device used. **Good Quality (2 marks):** 2 devices used. **Best Quality (5 marks):** 2 devices and proper descriptions provided.	/5

Section D – In-game SFX and Fmod (KU4.2, SE4.5)

In this part of this assignment you shall focus on the in-game SFX as a separate Ableton Live project.

In this part of this assignment you shall make use of FMOD as audio middleware required between Live and Unity. An Fmod project will be created and consumed. In this project separate events should be provided both for the music as well as the in-game SFX.

Note that you **cannot** use samples directly in FMOD project that **where not** exported from Ableton Live.

In this section you will create the game sounds that will be used in the game. You need to create a new project **name_surname_class sfx template Project. This project should contain samples from your sound proposal only. Other samples won't be accepted.**

Make sure you include the sfx samples per channel in the appropriate audio channels. **It is important to include a copy of the original (untouched) audio sfx samples in your assignment in a directory named - original sfx**.

Questions

1. Apply warping techniques to at **least one** of your sfx sample. Apply proper time-streching algorithms in Ableton Live on your audio samples. The resultant sound must match the intended game setting **(SE4.5)**.

2. Apply audio effects to **all** sfx samples. **(SE4.5)**.
   a. Make use of Ableton Live audio effects devices to **enhance** the sonic soundscape of **each** sfx sample to embrace the mood of the intended game setting.

   b. Use Ableton Live audio effect devices to keep the audio waveforms of in-game sfx as uniform as possible, avoiding contrast in volumes between **each sample**, always keeping the game context in mind.

   c. Briefly explain the intended game setting and your answers to questions (2a) and (2b)

3. Provide a write-up describing the use of vertical re-mixing and horizontal re-sequencing. Explain their role in dynamic music prodiction. Establish which method you shall use for your game and why. **(KU4.2)**

SE4.5 Justify different techniques leant and present alternatives or improvements	
Inadequate Quality (0 marks): Inconsistent information. **Q1 (2 marks):** Correctly answered as per requirements. **Q2a (3 marks):** 0.5 marks per correct sample. **Q2b (3 marks):** 0.5 marks per correct sample. **Q2c (2 marks):** 1 mark per correct answer.	/10

KU4.2: Identify the role of interactive composition in dynamic music	
Mark Obtained: Question 3 **Inadequate Quality (0 marks):** Inconsistent information. **Lowest Quality (1 mark):** HRS **or** VRM correctly explained. **Better Quality (2 marks):** HRS **and** VRM correctly explained. **Best Quality (5 marks):** Correct explanations and method established with proper justification.	/5

Section B – Fmod and Game Implementation (AA4.3, SE4.4)

In this section **create one Fmod project used for both music and in-game sfx.**
You will also need to **test** the sounds in an actual Unity game according to your project plan. There is no need to upload the game but you need to create a screen cast playing the game and demonstrating what you created, music and sfx needs to be heard clearly.

Questions

1. Create appropriate music events in Fmod under **Music folder**. Use re-mixing and/or re-sequencing methods as appropriate in the Fmod events available. In your write-up make sure you appropriately demonstrate how you applied the following techniques: (**AA4.3**)
    a. Transition and loop Regions
    b. Parameters and conditions
    c. Transition Timelines
    d. Probability and chance

2. Use appropriate techniques in your FMOD game music folder to the following. **(SE4.4)**:

    a. Smooth transitions between all the labeled regions in your game music.
    b. At least one instance of vertical remixing.

3. **Test your game in Unity**. Use the Fmod studio listener, Event emitters, and trigger zones to test all your sounds. In your write-up justify how Live and

Fmod where used to make your music **more adaptive**. Finally create a screen cast demoing all your sounds in the game (Unity only).

Upload the video (**not longer than 2 minutes**) and **provide a link** in the **documentation**. Make sure that the video **is correctly uploaded and working** otherwise **all** marks for this question **shall be lost**. **(SE4.4)**

AA4.3: Develop automation in an audio project.	
Mark Obtained: Question 1 **Inadequate Quality (0 marks):** Inconsistent information. Correct answer to question A (2 marks) Correct answer to question B (2 marks) Correct answer to question C (2 marks) Correct answer to question D (1 mark)	/7

SE4.4: Evaluate the use of proper sound dynamics within a context.	
Mark Obtained question 2a, 2b **Inadequate Quality (0 marks):** Inconsistent information. **Question 2a. (2 marks).** Correct answer to this question **Question 2b. (2 marks).** Correct answer to this question **Mark Obtained question 3:** **Screen cast required to answer this question.** **Inadequate Quality (0 marks):** Inconsistent information. **Good Quality (2 mark)**: A good number of game sounds can be heard in the game together with game music. **Good Quality (3 mark)**: A good number of game sounds can be heard in the game together with game music. Justification properly provided in the write-up. **Best Quality (6 marks**):Good Quality and all game sounds and music can be heard in game. Proper demonstration of screen cast provided.	/10