Assessment Brief Proforma

<table>
<tr><td>1. Module number</td><td>SET09121</td></tr>
<tr><td>2. Module title</td><td>Games Engineering</td></tr>
<tr><td>3. Module leader</td><td>Thomas Methven</td></tr>
<tr><td>4. Tutor with responsibility for this Assessment
Student's first point of contact</td><td>Thomas Methven</td></tr>
<tr><td>5. Assessment</td><td>Games Engine and Game - Including Pitch, design document, peer assessment</td></tr>
<tr><td>6. Weighting</td><td>100% of module assessment</td></tr>
<tr><td>7. Size and/or time limits for assessment</td><td>
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<tr><th></th><th>Weighting</th><th>Time/Words</th></tr>
<tr><td>Pitch</td><td>5%</td><td>1 Hour</td></tr>
<tr><td>Design Document</td><td>10%</td><td>1500 words</td></tr>
<tr><td>Game</td><td>70%</td><td>40 hours</td></tr>
<tr><td>Game report</td><td>5%</td><td>1500 words</td></tr>
<tr><td>Peer Review</td><td>10%</td><td>2 hours</td></tr>
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<tr><td>8. Deadline of submission</td><td>Your attention is drawn to the penalties for late submissions
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<tr><th></th><th>Week Due</th><th>Date</th></tr>
<tr><td>Pitch</td><td>Week 4</td><td>3pm 05/02/20</td></tr>
<tr><td>Design Document</td><td>Week 7</td><td>3pm 28/02/20</td></tr>
<tr><td>Game</td><td>Week 13</td><td>3pm 10/04/20</td></tr>
<tr><td>Game report</td><td>Week 13</td><td>3pm 10/04/20</td></tr>
<tr><td>Peer Review</td><td>Week 14</td><td>3pm 01/05/20</td></tr>
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</td></tr>
<tr><td>9. Arrangements for submission</td><td>Submission via Moodle
Follow formatting instructions detailed in main body</td></tr>
<tr><td>10. Assessment Regulations</td><td>All assessments are subject to the University Regulations</td></tr>
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11. The requirements for the assessment	*See following document*
12. Special instructions	You will be working in a team with one other student. You will submit each component as a group. This does not mean that you will get the same grade for all components as your partner. Evidence of work, including a personal report alongside your final game hand-in will be used to mark individuals within a group.
13. Return of work and feedback	**Pitch Presentation** Feedback will be given immediately following your presentation in person. **Design document** Feedback will be returned via Moodle within 3 weeks of submission. **Game** Formative feedback will be given during demonstration. Summative feedback will follow via Moodle within 3 weeks of submission
14. Assessment criteria	*See following document.*

SET09121

Games Engineering Coursework

General Information

Description

The aim of this coursework is to design, implement and evaluate a simple prototype game using C++and SFML. For the coursework you will work with a partner, and the submission will be from both of you.

Expectations and Goals

The choice of game that you decide to implement is up to you. You can look at previous work here: games.soc.napier.ac.uk/gameseng.html for inspiration. Remember, inspiration can come from outside the gaming space too!

There are some constraints on the game you will develop:

- You must be able to show where you got your inspiration for your game idea from. Some original screenshots would also be advantageous

- The game should feature multiple instances of graphical objects; should allow a user to interact using the keyboard & mouse and/or a controller; should feature autonomous behaviour of entities; should use collision detection in an appropriate manner; and have some form of sound effect or music (*So a purely text based adventure game would not be suitable for this assignment*)

- Using all the features of the game engine developed during the practical sessions will lead to a better game in general, but in particular you should try and implement mechanics based on physics and AI. You will achieve higher marks if you implement more advanced physics and AI techniques not specifically covered in the practical sessions that you have investigated yourself

- Your game must be programmed using C++ and SFML.
  Your game must utilise the engine developed during the practical sessions

- Your game should not be a simple modification to one developed during the practical sessions. Therefore games such as Pong, Space Invaders and Pac Man are not suitable

- **Modifying an existing online sample is not an acceptable submission for this coursework**

The basic requirement is that other users (aside from yourself) must be able to play your game at least to a basic level. Your game does not need to be a full, exhaustive and complete implementation of a game, but it should implement the basic gameplay that a user would expect. At the bare minimum, you MUST have a recognisable gameplay loop!

Choosing and Researching a Game

Games will differ widely in the challenge they present to you in creating an implementation that will run the way you want it to. Choose a game which you and your partner consider to be within the limitations of your time and resources. The marking scheme is devised to reward taking on a challenge, so a reasonable attempt at a difficult game which includes the features of the game engine is likely to attract more marks than a complete implementation of a simple game.

Take time to consider how much time you have available to implement your game, consider how adaptable your game idea can be to removing features if need be.

The pitch presentation is there as a formal check that your game idea is of a sensible scope and acceptable. You can approach the module staff anytime before your pitch to get input on your idea.

Research your tools
Take a look at existing projects that make use of SFML and what they are attempting to achieve. SFML is quite fully featured, but make sure your game idea does not rely on something crucial and complex that SFML cannot do.

Original work
2D games are a well explored area in terms of game design (especially in the mobile or indie market), so you would be hard pressed to point an entirely unique mechanic. This is a technical module, and as such we are not expecting something fundamentally unique. Delivering a perfect clone of an existing game, however, will come under scrutiny due to the vast amounts of code samples online. Try to build something new and different. Refer back to the recommended text and try to experiment with what happens when you subvert or invert classic game design tropes.

Do not depend on artwork
Please try not to choose an idea that needs substantial art assets, or game mechanics the rely on art content. You won't have time to create them, and you cannot guarantee that you can find the exact assets you need online. Aim for a game idea that could be fun to play with just flat coloured shapes. Thomas was Alone is a great example of this, if you ignore the voice over!

Deliverables

- Game Idea Pitch
- Game Design Document
- Game
    - See technical requirements
    - This will include a final group report and individual reflective report
    - This must be demonstrated and peer reviewed

Game Pitch Presentation

This is where you and your partner must give a short 5 minute presentation about the game you plan to implement.

This session serves three purposes. Firstly, it allows you to focus your idea very early on by having to present what you're planning to do. Secondly, it allows you to get feedback and some inspiration from the class and lecturer early in the coursework process. Thirdly, and possibly most importantly, it ensures that the idea you have is not overreaching what is possible within the time limits of the module.

A mock-up of a screen shot would also be advantageous at this stage. Your presentation should be created in PowerPoint. PowerPoint slides must be uploaded to Moodle before the practical session, but you must still take your slides along to the session.

Marking

This part of the assessment is not graded, and you will receive the full 5% if your presentation is deemed satisfactory.

To be deemed satisfactory your presentation will have to consist of:

- The game you have decided to create
- The inspiration for your game choice
- The player experience goals of your game
- Core gameplay idea
- Game features
- Possible enhancements

Game Design Document

The Game Design Document will provide a blueprint for your game idea and is used by you to evaluate how well your implementation went. A template of a game design document will be provided, and you are expected to fill in the relevant sections. Although you will submit your game design document for the deadline, you are expected to keep it up to date and modify it as your game implementation goes on.

Your design document should have the following sections:

- Overview and vision statement
- Inspirations
- Player experience goals
- Audience and platform
- Gameplay
    - Screen mock-up
    - Formal elements
    - Controls
- Media list

More detail of what you can put into these sections will be described in the template document which will be available on Moodle. You are expected to use the template document to give your own design document a more standardised look.

For high marks in this report, and in all documentation, your writing should be of a high professional standard, be clearly focused and articulated.

Main Game Project

This is the main deliverable for your coursework, and you should be piecing together your game from a very early stage.

Your game implementation is based on your original pitch and supported by the game design document. You must state where you have obtained any other code that is not your own. You can use online or book sources to help you develop some of the functionality, but ensure that state where and what you have used.

You must submit a working single file .exe installer for your game, along with a link to your source code repo. Your repo should contain instructions to successfully build your game from source.

Final Report

In addition to your project you must provide a written report on your application. This must contain the following numbered sections:

1. An introduction to your assignment stating its scope and content – this should include a brief overview of your game choice and the inspiration for your game choice
2. Changes / omissions from your game design document. If there are any features from your game design document not implemented, or any other changes made, state these here
3. Software design. You are expected to do some software modelling of your game choice. At a minimum you are expected to provide some state modelling and sequence modelling. Avoid providing simple models just to fill in this section, only highlight some of the core functionality
4. Short description of your game implementation including screenshots.
5. An evaluation of your implementation. Points to consider discussing in this section are:
    a. A comparison against the original concept
    b. Comparison against other games in the genre, particularly the ones that inspired your choice
    c. A discussion on the quality of the game
    d. Possible improvements to your game
6. Summary of any resources used plus a list of references
   You must provide a reference for every resource used that you have not created yourself – for example, images and sound

Individual Report

Each individual student must also submit an individual report of max 500 words discussing the development process, what techniques they used, and how well the team worked together. If there was a problem with the team, then this should also be discussed here. This is submitted Individually.

Demonstration and Peer Assessment

This part of the coursework is worth 10% of your final mark.

You will demonstrate your game to the module team and class to highlight the features of the game and ensure that all the capabilities of your game are highlighted. The peer assessment exercise will allow the other students to assess your game and 10% of your final mark will be provided from this exercise.

All coursework must be demoed, and attendance at the peer assessment is mandatory.

If you do not attend the peer assessment session then you will not receive a mark for that element of the coursework.

If you do not demo your coursework in some manner to the module leader, then your coursework will not be assessed.

Main Project (Game) Marking Scheme

Mandatory Gameplay & Technical Features (30%)

1. 2D graphics engine using SFML
2. Main menu (Ability to quit to menu, and restart game)
3. Some form of AI
4. Interactive Sound (i.e. interaction sound effects, not just background music)
5. 1080p/60fps on a reasonable systems specification
6. Usability options:
    a. Remappable controls
    b. Controller support
    c. Graphics options (Resolution & window mode)
7. Operating system support:
    a. Windows: 10 x64 - Must run on D2 PCs
8. Single file .exe game installer / uninstaller - Must install any and all dependencies.
9. User preference (and save functionality where applicable) saving/loading from disk.
10. 10.Web presence with game promo material (screenshots & video) and game downloads.

Software Design & Code Quality (10%)

1. Tidy, documented, and organised code
2. Use of appropriate software patterns
3. Evidence of performance analysis and/or optimisation

Software Engineering Methods & Testing (10%)

1. Evidence of proper version control best practises
2. Evidence of proper project management
3. Working continuous integration / Cloud build testing
4. Evidence and reports from play testing

Scope And Additional Features (20%)

1. Technical features and gameplay, above and beyond mandatory requirements

Final Allocation

Pitch (Pass/Fail as described earlier)	5%
Game Design Document (Requirements provided earlier)	10%
Main Project (Full marking scheme above)	70%
Game Report (Includes individual report)	5%
Peer Review (Averaged mark from your peers)	10%