SET09121

Games Engineering Coursework

Game Design Document

Learning Outcomes Covered:	LO3, LO4
Assessment Type:	Report
Overall module assessment	100% Coursework
For this assessment:	10%
Assessment Limits:	2000 words
Submission Deadline:	Monday, 03 November 2025 at 12am
Submission Method:	Via Moodle
Turnitin on submissions:	Turnitin report not visible to students
Module Leader:	Leni Le Goff
Tutor with direct responsibility:	Leni Le Goff
Return of work and feedback:	Feedback on submissions will normally be provided within three working weeks from the submission date.
Notes:	• You are advised to keep a copy of your submitted assessment. • Please read and follow the 'Fit-to-Sit' guidance if you need to request an extension

Personal Report

Learning Outcomes Covered:	LO1, LO2, LO3, LO4
Assessment Type:	Report
Overall module assessment	100% Coursework
For this assessment:	25%
Assessment Limits:	1500 words
Submission Deadline:	Monday, 08 December 2025 at 12pm
Submission Method:	Via Moodle
Turnitin on submissions:	Turnitin report not visible to students
Module Leader:	Leni Le Goff
Tutor with direct responsibility:	Leni Le Goff
Return of work and feedback:	Feedback on submissions will normally be provided within three working weeks from the submission date.
Notes:	• You are advised to keep a copy of your submitted assessment. • Please read and follow the 'Fit-to-Sit' guidance if you need to request an extension

Game Demonstration

Learning Outcomes Covered:	LO1, LO2, LO3, LO4
Assessment Type:	Practical Assessment / Demonstration
Overall module assessment	100% Coursework
For this assessment:	15%
Assessment Limits:	15 minutes
Submission Deadline:	Monday, 08 December 2025 at 12pm
Submission Method:	Not Applicable
Turnitin on submissions:	Turnitin report not visible to students
Module Leader:	Leni Le Goff
Tutor with direct responsibility:	Leni Le Goff
Return of work and feedback:	Feedback on submissions will normally be provided within three working weeks from the submission date.
Notes:	• You are advised to keep a copy of your submitted assessment. • Please read and follow the 'Fit-to-Sit' guidance if you need to request an extension

Group Report

Learning Outcomes Covered:	LO1, LO2, LO3, LO4
Assessment Type:	Report
Overall module assessment	100% Coursework
For this assessment:	50%
Assessment Limits:	3000 words
Submission Deadline:	Monday, 08 December 2025 at 12pm
Submission Method:	Via Moodle
Turnitin on submissions:	Turnitin report not visible to students
Module Leader:	Leni Le Goff
Tutor with direct responsibility:	Leni Le Goff
Return of work and feedback:	Feedback on submissions will normally be provided within three working weeks from the submission date.
Notes:	• You are advised to keep a copy of your submitted assessment. • Please read and follow the 'Fit-to-Sit' guidance if you need to request an extension

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 in a team of 2 to 4 people.

Expectations and Goals

The choice of game that you decide to implement is up to you. 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 that 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 Design Document
- Game
    - See technical requirements
    - This will include a final group report and individual reflective report
    - This must be demonstrated

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 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.

The group report and the project is worth 50% of your final mark.

Group Report

In addition to your project you must provide a written report on your application of max 3000 words. 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

This part of the coursework is worth 25% of your final mark.

Each individual student must also submit an individual report of max 1500 words discussing the development process, what techniques they used, and how well the team worked together. It should also provide information on exactly what did the report author contribute to the project (e.g. physics code, making or finding which art assets, level design). If work was shared in some aspects, provide very rough percentages. If there was a problem with the team, then this should also be discussed here. This is submitted individually.

Demonstration

This part of the coursework is worth 15% 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.

All coursework must be demonstrated, 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 (25%)

1. 2D graphics engine using SFML
2. Main menu (Ability to quit to menu, and restart game)

3. Some form of AI or physics or both
4. 1080p/60fps on a reasonable systems specification
5. Usability options:
    a. Remappable controls
    b. Controller support
    c. Graphics options (Resolution & window mode)
6. Operating system support:
    a. Windows: 10 x64
7. Single file .exe game installer / uninstaller - Must install any and all dependencies.
8. User preference (and save functionality where applicable) saving/loading from disk.
9. Web presence with game promo material (screenshots & video) and game downloads.

Software Design & Code Quality (15%)

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. Evidence and reports from playtesting

Scope And Additional Features (5%)

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

Assessment regulations and academic integrity

The University rules on Academic Integrity apply to all submissions. The student academic integrity regulations contain a detailed definition of academic integrity breaches.

- You cannot knowingly permit another student to copy all or part of your work.
- You must not share your work with other students. This includes posting any of your work in any repository that is accessible to others (such as GitHub) and applies also after you have completed the course.
- Asking coursework-related questions in external online forums (such as Stackoverflow) is NOT permitted.

By submitting the report, you are confirming that:

- It is your own work except where explicit reference is made to the contribution of others.
- It has not been submitted for any module, programme or degree at Edinburgh Napier University or any other institution.
- If you have made use of generative Artificial Intelligence (AI) tools, you have done so only as allowed for this assessment, and have provided the relevant details in the coursework declaration.

Academic skills support: In advance of submission, you can access the support of the academic skills team. They can help you with any aspect of the assessment that you might struggle with, that is not content related. For example, they can help with time-management, effective reading and note-making, and any aspect of academic writing that you might struggle with. This support is provided through workshops and individual appointments which are bookable online via MyNapier: Improve your Academic & Study Skills (napier.ac.uk). You can also directly email the Academic Skills Adviser, Hannah Awcock, h.awcock@napier.ac.uk for any specific academic skills support you require.

Use of generative AI:

Please include the Assessment Declaration Cover Sheet in your submission. This is provided on the moodle page.

Submissions must be accompanied by a declaration cover sheet to fulfil the requirements of the university Assessment Policy.

Use	Permitted?	Advice	How to acknowledge use
As a search engine	Yes	Cross reference AI output for factual accuracy in authoritative texts e.g. text books, reading lists, peer-reviewed publications	Acknowledgment not required
As an ideas generator/conversational partner/debating partner	Yes	Cross reference for accuracy as above AND check for bias, irrelevant or too generalised ideas.	On cover sheet: "I used [tool name] on [date] with the question [insert question/prompt used] to give me ideas, of which I used/adapted into [idea name] in this submission"
To suggest a submission structure	With caution	Consult the assessment brief first to ensure your structure follows the recommendations and meets the learning outcomes.	On cover sheet: "I used [tool name] on [date] with the question [insert question/prompt used] to get a submission structure, which I used/adapted into [part name] in this submission"
To make suggestions to improve your communication of your ideas	With caution	Always start with your own writing first to develop your own thinking. Use the AI tool to get quick feedback and use your judgement whether its advice is appropriate for your submission. Work on one paragraph at a time.	Acknowledgment not required *Or* On cover sheet: "I used [tool name] on [date] with the question [insert question/prompt used] on [section name(s)/whole submission] to get feedback on my writing, which I then improved based on its advice on [spelling/grammar/ vocabulary/etc.]
To generate content (example 1: not allowed)	No	Never ask an AI tool to generate parts of your submission from scratch. Do not input assessment brief or rubric into AI tools	

		and ask it to generate your submission.	
To generate content (example 2: allowed)	With caution	Always put copied-and-pasted AI content in quotations marks (in the case of text) or label other media appropriately.	On cover sheet: “AI generated content is indicated in this submission [within quotation marks/labelled] which gives the prompt used, the tool name and date used”

Final Allocation

Game Design Document (Requirements provided earlier)	10%
Group Report (Full marking scheme above)	50%
Personal Report (Includes individual report)	25%
Demonstration (Averaged mark from the module team)	15%