

NUS SOC Summer Workshop 2026

Media, Analytics, Security & AI

Introduction to 2D Game Development

Course Information

Pre-requisites

👾 Which year of study is appropriate for your topic?

2nd or 3rd year students: for intellectual maturity.

👾 What background and programming languages are required for your topic?

Object-oriented programming language, data structures, and linear algebra.

👾 What do you think is attractive/unique about your topic to students?

Attractive/Unique about the topic: understand how your favorite videogames are build.

Attractive/Unique about the learning process: learn modern videogame development tools, understand and hands-on practice on the brainstorming process, appreciation for approaches to making fun games, and hands-on development of your own game from scratch

Learning content and Teaching

👾 What will be covered during “trial” lectures?

Material coverage during the trial lecture: please refer to

<https://myuwbcourses.github.io/IntroGameDevelopment/>

Introduction: [Slides](#)

Module 1: [Game Engine + Objects](#)

Exercises:

For student self-practice: [first exercise](#) (solutions will be provided)

NUS SOC Summer Workshop 2026

Media, Analytics, Security & AI

Introduction to 2D Game Development

Course Information

🐼 What will be covered during the “advanced” seminars?

Module 2: [Bounds + Navigations](#)

Module 3: [UI, Interaction, Game Manager](#)

Module 4: [Autonomous Behavior](#)

Team building activities: including student self-intro (from 2019: [Student-1](#), [Student-2](#), [Student-3](#))

Lectures on: Brainstorming for games, How to make fun games, Approaches and details of playtesting

Individual Exercise: [second exercise](#)

Team Exercise: [third exercise](#)

🐼 What will be the nature of the project work? How do you intend to split students into project groups, each consisting of 3 or 4 students?

The project phase: Videogame development. Students will gain hands-on experience on the process of building a videogame based on building the games that they have proposed and designed during the seminars. Students will experience the time pressure, the competitive nature, the pleasure of observing players playing their game, the challenge of integrating player feedback, and, eventually, the job of delivering a final product based on their own brainstormed ideas.

More specifics: (1) Nature of the project work: Students will work in groups on the games they brainstormed and prototyped. This work is entirely software development. **(2)** Groups: Students will present to the entire class their interests of game genre, their own strengths and challenges in building the types of games that interests them. Based on these presentations, students will choose and form teams for building games of common interests.

NUS SOC Summer Workshop 2026

Media, Analytics, Security & AI

Introduction to 2D Game Development

Course Information

 Do you have any recommendations for references (books) students can study to prepare for your topic before coming to NUS?

Two main areas of preparations: technical and design.

Technical: Begin learning Unity: visit the website <https://unity.com/solutions/game>. Download and install Unity Hub and follow the tutorials on the Hub.

Game Design: Game Design Workshop: A Playcentric Approach to Creating Innovative Games, Fourth Edition, Tracy Fullerton.

 Besides their own personal laptops, what other equipment or software would students need for your topic?

<https://unity.com/solutions/game>: this is a free download for students. No other equipment is necessary.

Assessment

 What forms of assessment will there be?

- Two (or three) programming assignments. First one would be due after the Trial lectures and will be used to select students for the second part of the workshop.
- Game idea brainstorm result in the form of a rough game design document.
- Prototype implementation of game ideas.
- Demonstration of game ideas in the context of a rough game system.
- Alpha, Beta, and final delivered games

Each of the above will be graded and peer evaluated (evaluated by other students in the class).