

SM2603: 2D GAME PRODUCTION

Effective Term

Semester A 2026/27

Part I Course Overview

Course Title

2D Game Production

Subject Code

SM - School of Creative Media

Course Number

2603

Academic Unit

School of Creative Media (SM)

College/School

School of Creative Media (SM)

Course Duration

One Semester

Credit Units

3

Level

B1, B2, B3, B4 - Bachelor's Degree

Medium of Instruction

English

Medium of Assessment

English

Prerequisites

Nil

Precursors

Nil

Equivalent Courses

Nil

Exclusive Courses

Nil

Part II Course Details

Abstract

This course aims to help students acquire skills for design and development of interactive and multimedia entertainment (mainly focus on game); broaden their experience and knowledge on the concepts and technologies on interactive and

multimedia technologies; provided students with hands-on experience on developing programs for interactive and multimedia entertainment.

Course Intended Learning Outcomes (CILOs)

CILOs		Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Acquire object oriented programming knowledge for game development			x	
2	Acquire general knowledge of 2D game program development			x	
3	Design a simple 2D game		x	x	
4	Implement and play-test a 2D game using a modern game engine		x	x	x
5	Assign or link up extra self-initiated tasks on top of an assignment / coursework for further exploration of the subject		x	x	x
6	Associate, combine and integrate knowledge from different disciplines (e.g. mathematics, sciences, physics etc.) into course assignments		x	x	x

A1: Attitude

Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

A2: Ability

Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to real-life problems.

A3: Accomplishments

Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

Learning and Teaching Activities (LTAs)

LTAs	Brief Description	CILO No.	Hours/week (if applicable)
1	Lecture	Lecture with interactivity	1
2	Lecture / Tutorial / Assignment	Lecture with interactivity Tutorial with case study, laboratory exercises and assignments	2, 5, 6
3	Assignment / Project	Design a simple 2D game; write a simple game design document.	3, 4, 5, 6
4	Assignment / Project	2D games case study; Implement and play-test a 2D game using a modern game engine	4, 5, 6

Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks ("- " for nil entry)	Allow Use of GenAI?
1	Coursework / Programming Assignment	1, 2	20	-	Yes
2	Project	1, 2, 3, 4, 5, 6	60	-	Yes
3	Test	1, 2	20	-	Yes

Continuous Assessment (%)

100

Examination (%)

0

Minimum Continuous Assessment Passing Requirement (%)

0

Minimum Examination Passing Requirement (%)

0

Assessment Rubrics (AR)**Assessment Task**

1. Coursework, Project

Criterion

Students should demonstrate ability to utilize primary and secondary sources, build up argument and analysis. The threshold of 'discovery' lied in a student's self initiatives to conduct additional research and to personalize theories for her/his personal daily experience.

Excellent (A+, A, A-)

Excellent grasp of research material, able to explain key concepts, assumptions and debates
 Rigorous organization, coherent structure, distinct thesis, properly argued with strong narrative
 Insightful interpretation of the subject matter with distinct themes and thesis
 Critical analysis with insightful comments opening up new issues, or suggesting the ability to theorize
 Ability to approach a text or a theme using a variety of theories and analytical tools
 Strong bibliography suggesting breadth and depth of coverage and informed insights

Good (B+, B, B-)

Firm grasp of materials, able to explain key concepts and assumptions
 Reasonable organization, balanced structure, adequate content, sufficient ability to integrate various resources based on demand
 Clear ideas which keep to the point, clear-cut subject, ability to interpret opinions independently
 Organized bibliography which can be utilized in accordance with the topic

Fair (C+, C, C-)

Comprehensive grasp of materials, able to explain key concepts
 Fair organization, weak structure, adequate content, fair ability to integrate various resources based on demand
 Relevant points to the subject matter, fair ability to interpret opinions
 Unorganized bibliography which can be utilized in accordance with the topic

Marginal (D)

Loose grasp of materials, cannot explain key concepts
 Poor organization and structure, weak content, limited use of resources
 Relevant points to the subject matter, marginal ability to interpret opinions

Insufficient and/or unorganized bibliography

Failure (F)

Poor grasp of materials

No organization and structure, inadequate content, no/ irrelevant use of resources

Irrelevant points to the subject matter, minimal ability to interpret opinions

Irrelevant bibliography

Assessment Task

2. Computer Programming Assignments

Criterion

Students should demonstrate ability to design and code a program according to instructions.

Excellent (A+, A, A-)

The program runs and completes all required tasks; handles special cases accordingly; executes without errors

Includes all appropriate input prompts and explains/ describes all output values

Variables and methods are named appropriately and used efficiently

Appropriate tabbing; good use of white space

Well-organized and easy to follow

Excellent inline code comments and documentation

Good (B+, B, B-)

The program runs and completes most tasks appropriately; fails to work for special cases; executes with a few errors

Some input or output prompts / descriptions are inappropriate

Variables and methods are named and used appropriately

Appropriate tabbing; use of white space

Fairly organized but easy to follow

Contains required heading with program description; effective use of comments

Fair (C+, C, C-)

The program runs and completes a few tasks; fails to work for special cases; gives incorrect results for most input

Some input or output prompts / descriptions are missing

The use of some variables and method names are inappropriate / over-used / under-used and some methods are used inefficiently

Inappropriate use of tabbing / white space

Poorly organized but still readable

Contains required heading; appropriate use of comments

Marginal (D)

The program fails to execute due to errors

Lack most input and output descriptions

Poor use of variable / method name; variables / methods are used inappropriately

Inappropriate use of tabbing and white space

Poorly organized; difficult to read

Appropriate heading; ineffective use of comments

Failure (F)

The program fails to execute due to errors

Lack all input and output descriptions

Poor use of variable and method name; variables and methods are used inappropriately

Poor use of tabbing and white space

Not organized; not readable

Missing heading; no comment included

Additional Information for AR

All A+/A/A- grade assignment should comply with the highest performance of Discovery-oriented learning.

Part III Other Information**Keyword Syllabus**

Interactive Multimedia Industry; Essentials of Software Development; Introduction to 2D Game Engines; Physics Simulation and Artificial Intelligence; Collision Detection / Resoluton; Events and Signals; Use Interface in 2D Game Engines

Reading List**Compulsory Readings**

Title	
1	葉勁峰, 張承廣, 吳家維, DirectX9 遊戲開發實務, 旗標出版社, 2003.
2	Andrew Rollings, Dave Morris, Game Architecture and Design: A New Edition, New Riders Publishing, 2003.
3	Jonathan S. Harbour, Advanced 2D Game Development. Course Technology PTR, 2008.
4	Ian Millington, Game Physics Engine Development: How to build a robust commercial-grade physics engine for your game. Morgan Kaufmann, 2010.
5	Brandon Trebitowski, Christopher Allen, Shannon Appelcline, iPhone and iPad in action: introduction to SDK development. Manning Publications, 2010.
6	Fletcher Dunn and Ian Parberry, 3D Math Primer for graphics and game development. A K Peters / CRC Press, 2011.
7	Michelle Menard, Game Development with Unity. Course Technology PTR, 2011.
8	Mircosoft DirectX Developer Center: http://msdn.microsoft.com/directx/
9	Simple DirectMedia Layer: http://www.libsdl.org/index.php
10	Pygame: http://www.pygame.org
11	Unity Game Engine: http://unity3d.com
12	Godot Game Engine: https://godotengine.org/
13	Robert Henning, Godot 4 for Beginners: Develop engaging 2D and 3D games with Godot 4's scripting and design features.Packt.

Additional Readings

Title	
1	Jazon Yamamoto, The Black Art of Multiplatform Game Programming. Cengage Learning PTR, 2015.
2	Robert Nystrom, Game Programming Patterns. Genever Benning, 2014.