SM2603: 2D GAME PRODUCTION

Effective Term
Semester A 2025/26

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 C++		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 interactivityTutorial 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 C++	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; Graphics Programming Using SDL; User Interaction Control Using SDL; Embedding Audio Using SDL Audio; Physics Simulation and Artificial Intelligence; Collision Detection / Resoluton.

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	Ernest Pazera, Focus on SDL, Premier Press, 2003.
4	Jonathan S. Harbour, Advanced 2D Game Development. Course Technology PTR, 2008.
5	Ian Millington, Game Physics Engine Development: How to build a robust commercial-grade physics engine for your game. Morgan Kaufmann, 2010.
6	Brandon Trebitowski, Christopher Allen, Shannon Appelcline, iPhone and iPad in action: introduction to SDK development. Manning Publications, 2010.
7	Fletcher Dunn and Ian Parberry, 3D Math Primer for graphics and game development. A K Peters / CRC Press, 2011.
8	Michelle Menard, Game Development with Unity. Course Technology PTR, 2011.
9	Mircosoft DirectX Developer Center: http://msdn.microsoft.com/directx/
10	Simple DirectMedia Layer: http://www.libsdl.org/index.php
11	Pygame: http://www.pygame.org
12	Unity Game Engine: http://unity3d.com

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.
3	Shaun Mitchell, SDL Game Development. PACKT Publishing, 2013.