

CS4367: COMPUTER GAMES DESIGN

Effective Term

Semester A 2025/26

Part I Course Overview

Course Title

Computer Games Design

Subject Code

CS - Computer Science

Course Number

4367

Academic Unit

Computer Science (CS)

College/School

College of Computing (CC)

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 elective course aims at introducing various topics related to the production of computer games. The course will cover the technological aspects for implementing computer games. The scenario writing, designing of characters, game production and marketing will also be included.

Course Intended Learning Outcomes (CILOs)

CILOs		Weighting (if DEC-A1 DEC-A2 DEC-A3 app.)			
1	Explore the characteristics, requirements and challenges of various game genres and game platforms.	20	x		
2	Describe the essential elements and technologies of game design.	20		x	
3	Evaluate and justify a game design with respect to gameplay, level design and characters setting.	20		x	
4	Create a well-balanced game with comprehensive documentation.	20			
5	Design critical thinking skill on creating high quality game.	20		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	In lectures, students will engage in the essential technologies, requirements and theories of computer game design.	1, 2, 3, 4, 5 3 hours/week

2	Tutorial	Students will engage in case studies, analytical discussion and programming exercises. Case studies and analytical discussion are designed to review the material covered in the lectures and widen students' exposure on the related topics. Programming exercises provide hand-on experience on computer game programming that provides technical competence of computer game design.	1, 2, 3, 4, 5	8 hours/semester
3	Assignment	Students will explore the current trend and technologies of computer game design. Students are required to perform critical assessment and discover potential improvement of their findings.	1, 2, 3, 5	
4	Project	Student will design and develop a computer game with the following requirements: - demonstrate a good understanding on the characteristics and requirements of a given game genre. - apply appropriate technologies in game design. - provide documentation and critical assessment on the game developed.	1, 2, 3, 4, 5	

Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks ("- for nil entry)	Allow Use of GenAI?
1	Assignment	1, 2, 3, 4, 5	20	-	Yes
2	Quiz	1, 2, 3, 5	20	-	No

Continuous Assessment (%)

40

Examination (%)

60

Examination Duration (Hours)

2

Minimum Examination Passing Requirement (%)

30

Additional Information for ATs

For a student to pass the course, at least 30% of the maximum mark for the examination must be obtained.

Assessment Rubrics (AR)

Assessment Task

Assignment

Criterion

ABILITY to identify the characteristics, requirements and challenges of various game genres and game platforms

Excellent (A+, A, A-)

High

Good (B+, B, B-)

Significant

Fair (C+, C, C-)

Moderate

Marginal (D)

Basic

Failure (F)

Not even reaching marginal levels

Assessment Task

Assignment

Criterion

ABILITY to provide quality evaluation on a game design

Excellent (A+, A, A-)

High

Good (B+, B, B-)

Significant

Fair (C+, C, C-)

Moderate

Marginal (D)

Basic

Failure (F)

Not even reaching marginal levels

Assessment Task

Programming Assignment

Criterion

ABILITY to design a game that fulfills the requirement and constraint of a given game genre and platform

Excellent (A+, A, A-)

High

Good (B+, B, B-)

Significant

Fair (C+, C, C-)

Moderate

Marginal (D)

Basic

Failure (F)

Not even reaching marginal levels

Assessment Task

Programming Assignment

Criterion

ABILITY to apply the design technologies in constructing their game and evaluate their game design with supporting literature

Excellent (A+, A, A-)

High

Good (B+, B, B-)

Significant

Fair (C+, C, C-)

Moderate

Marginal (D)

Basic

Failure (F)

Not even reaching marginal levels

Assessment Task

Programming Assignment

Criterion

ABILITY to provide justification on their game design

Excellent (A+, A, A-)

High

Good (B+, B, B-)

Significant

Fair (C+, C, C-)

Moderate

Marginal (D)

Basic

Failure (F)

Not even reaching marginal levels

Assessment Task

Programming Assignment

Criterion

DESIGN game with innovative gameplay, level design and character settings. In addition, the game should be well balanced and documented

Excellent (A+, A, A-)

High

Good (B+, B, B-)

Significant

Fair (C+, C, C-)

Moderate

Marginal (D)

Basic

Failure (F)

Not even reaching marginal levels

Assessment Task

Exam

Criterion

ABILITY identifying the characteristics, requirements and challenges of various game genres and game platforms

Excellent (A+, A, A-)

High

Good (B+, B, B-)

Significant

Fair (C+, C, C-)

Moderate

Marginal (D)

Basic

Failure (F)

Not even reaching marginal levels

Assessment Task

Exam

Criterion

ABILITY to evaluate and justify game design, particularly in gameplay, level design and character design

Excellent (A+, A, A-)

High

Good (B+, B, B-)

Significant

Fair (C+, C, C-)

Moderate

Marginal (D)

Basic

Failure (F)

Not even reaching marginal levels

Assessment Task

Exam

Criterion

ABILITY to provide quality evaluation on a game design

Excellent (A+, A, A-)

High

Good (B+, B, B-)

Significant

Fair (C+, C, C-)

Moderate

Marginal (D)

Basic

Failure (F)

Not even reaching marginal levels

Part III Other Information

Keyword Syllabus

Game Scenario Designing, User Interface, Character Design, Programming Platforms, Real-Time Control, Hardware controllers for games, Network Communication for Games, Artificial Intelligence, Programming Techniques for Games, Physical Animation, Quaternion.

Syllabus

- Game Design Documents
- Gameplay
- Storytelling
- Character Creation and Development
- Artificial Intelligence
- Core Mechanics
- Level Design
- Game Balancing
- User Experience

Reading List

Compulsory Readings

Title	
1	Nil

Additional Readings

Title	
1	Andrew Rollings and Dave Morris (2004). Game Architecture and Design. New Riders. (ISBN-13: 978-0-7357-1363-5).
2	Ernest Adams and Andrew Rollings (2009). Fundamentals of Game Design. Prentice Hall. (ISBN: 0-13-168747-6).
3	Michael E. Moore and Jennifer Sward (2007). Introduction to the Game Industry. Prentice Hall. (ISBN: 0-13-168743-3).