CS4367: COMPUTER GAMES DESIGN

Effective Term
Semester A 2022/23

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 Engineering (EG)

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 app.)	DEC-A1	DEC-A2	DEC-A3
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	Develop 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.

Teaching and Learning Activities (TLAs)

	TLAs	Brief Description	CILO No.	Hours/week (if applicable)
1	Lecture	Lectures will cover the essential technologies, requirements and theories of computer game design.	1, 2, 3, 4, 5	3 hours/week

2	Tutorial	Tutorials will be in form of 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	The assignment aims to encourage students to 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 (e.g. Parameter for GenAI use)
1	Assignment	1, 2, 3, 4, 5	20	
2	Quiz	1, 2, 3, 5	20	

Continuous Assessment (%)

40

Examination (%)
60

Examination Duration (Hours)
2

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).