T-104
2022

Course Specification
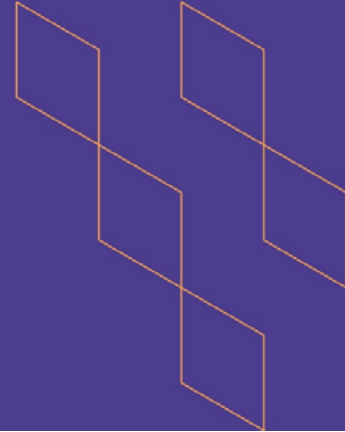
Course Title:	Computer Games Programming
Course Code:	**CS1770**
Program:	**Computer Science**
Department:	**Computer Science**
College:	**Computer Science and Information Technology**
Institution:	**Albaha University**
Version:	**1**
Last Revision Date:	**April 5, 2023**

Table of Contents:

A. General information about the course:

Course Identification	
1. Credit hours:	3

2. Course type

a.	University ☐	College ☐	Department ☒	Track☐	Others☐
b.	Required ☐	Elective☒			

3. Level/year at which this course is offered: 12/4	8th level / 3rd year

4. Course general Description
The aim of this module is to demonstrate an understanding of computer game programming. Concepts will be applied in the design and implementation of computer games. Students will implement a non-trivial computer game using industry-standard techniques.

5. Pre-requirements for this course (if any):
Machine Learning (**CS1505**)

6. Co- requirements for this course (if any):
N/A

7. Course Main Objective(s)
After completing this module, students will be expected to be able to:
1. Demonstrate an understanding of concepts and techniques of computer game programming as covered in this module.
2. Apply these concepts and techniques in the design and implementation of computer games.
3. Implement a non-trivial computer game using industry-standard techniques.

1. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1.	Traditional classroom	22	50%
2.	E-learning		
3.	Hybrid • Traditional classroom • E-learning		
4.	Distance learning		
5.	Lab	22	50%

2. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	22
2.	Laboratory/Studio	22
3.	Field	0

4.	Tutorial	0
5.	Others (specify)	0
	Total	**44**

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	**Knowledge and understanding**			
1.1	Describe programming aspects of the Computer Games	K1	• Lectures	• Midterm • Final exam
1.2	Describe history of computer/video game technology, game genres and design principles, and the social impact of games.	K1	• Lectures	• Midterm • Final exam
2.0	**Skills**			
2.1	Design games using a commonly used game environment.	S1	▪ Tutorials ▪ Lectures ▪ Task-based learning ▪ Project ▪ Assignment	▪ Project (rubric) ▪ Assignment (rubric) ▪ Final Exam
2.2	Demonstrate tools and techniques for programming interactive games and virtual reality simulations	S2	▪ Tutorials ▪ Lectures ▪ Task-based learning ▪ Project ▪ Assignment	▪ Project (rubric) ▪ Assignment (rubric) Final Exam
2.3	Solve problems by applying different mathematical, logical, and physical principles.	S1	▪ Tutorials ▪ Lectures ▪ Task-based learning ▪ Project ▪ Assignment	▪ Project (rubric) ▪ Assignment (rubric) Final Exam
3.0	**Values, autonomy, and responsibility**			
3.1	Interact in groups collaboratively.	V1	•Small groups	Project (rubric)

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
3.2	Communicate concepts and techniques in oral presentations.	V1	• Oral presentation	Assignment (rubric)

C. Course Content

No	List of Topics	Contact Hours
1.	Introduction to the used programming language and the environment ➔ Chapter 1: getting to know your environment	4
2.	Chpater2: the building blocks of Programming	4
3.	Chapter3: Diving into Variables, Types and Methods	4
4.	Chapter4: Control Flow and Collection Types	8
5.	Chapter6: A game design primer, building a level, lighting basics, and animating	8
6.	Chapter 7: Movement, Camera Controls and Collisions	8
7.	Chapter 8: Scripting Games Mechanics	8
	Total	44

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Midterm exam	5	20%
2.	Assignments/Discussions	Periodically	20%
3.	Project/Presentation	10-11	20%
4	Final exam	13	40%

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.)

E. Learning Resources and Facilities
1. References and Learning Resources

Essential References	Learning C# by Developing Games with Unity, by Harrison Ferrone, 2022
Supportive References	• Games Design Theory and Practices, By Richard Rouse • The Art of Computer Games by Chris Crawford
Electronic Materials	• ACM (Association for Computer Machinery) web site - http://www.acm.org/

	• ACM SIGCSE (Special Interest Group on Computer Science Education) resource web site - http://www.sigcse.org/SIGresources • IEEE Computer Society website - http://www.computer.org/portal/web/guest/home • https://learn.unity.com/
Other Learning Materials	--

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	• A classroom or lecture hall with whiteboard for 25 students. • A laboratory with 25 computers.
Technology equipment (projector, smart board, software)	• A digital image projection system with connection to desktop computer and laptop computer. • High speed Internet connection. • An instructor computer station.
Other equipment (depending on the nature of the specialty)	None

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching		
Effectiveness of students' assessment	▪ Students ▪ Exam Evaluation Committee ▪ Course Coordinator	▪ Survey (indirect) ▪ Exam Review (direct) ▪ Review of course file (direct)
Quality of learning resources	▪ Faculty ▪ Students	▪ Survey (indirect)
The extent to which CLOs have been achieved	▪ Faculty ▪ Program Leaders or Course Coordinator	▪ Exams (direct) ▪ Exit Exams (direct)

Assessor (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

G. Specification Approval Data

COUNCIL /COMMITTEE	
REFERENCE NO.	
DATE	