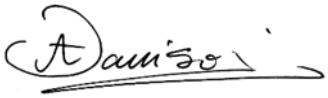
Approved by Chair:



Dec 24, 2023

Signature

GAME3015– Game Engine Development II

Course Description

This senior level project-based course will allow the students to develop a complete 3D game using an industry-standard game development platform. The purpose of this course is to give the students hands-on experience with all aspects of video game development and delivery, as well as working in a team environment. It will bring together topics such as level design, model design and animation, sounds, events, artificial intelligence, and user interface design.

Course Outcomes

1. Explain the principles that make 3D graphics and scenes effective.
2. Implement collision and physics into a game engine.
3. Implement AI and networking into a game engine.
4. Develop a game using a custom engine.
5. Develop a game editor in order to quickly and effectively modify a game.
6. Use advanced debugging and profiling techniques in game creation.
7. Format all deliverables to comply with Canadian laws and policies.

List of Textbooks and Other Teaching Aids:

Recommended:

Game Engine Architecture, Third Edition
By: Jason Gregory
ISBN-13: 978-1-1380-3545-4
Publisher: CRC Press Taylor & Francis Group

Game Coding Complete, Fourth Edition
By: Mike McShaffry & David Graham
ISBN-13: 978-1-133-77657-4
Publisher: Course Technology PTR

Recommended Resources:

None

Course Delivery Mode

- This course has a separate 3-hour session for each section per week.
- **T163:** All classes are on-campus.

  Any variation to the above will be posted in the online course shell in advance.

Assignment Policy

All assignments must be submitted on the due date of each respective assignment by means specified by their professor for that assignment. For every day past the due date there will be 10% penalty unless the student has notified the professor (via e-mail, phone or in person) ahead of due date that he/she has a valid reason for late submission. Submissions will no longer be accepted after five days past an assignment due date.

Test Policy

Students are required to complete lab tests, quizzes, exams as well as take-home assignments. If a student misses a test for valid reasons, including medical, and can provide a doctor's note, he/she will be given a chance to rewrite the test at a later date.

Students are required to adhere to all George Brown College policies and procedures regarding withdrawals, exemptions, attendance, class assignments and academic dishonesty. Please refer to the following: https://www.georgebrown.ca/about/policies/.

Detailed Evaluation System

Assessment Tool:	**Description:**	**Outcome(s) assessed:**	**EES assessed:**	**Date / Week:**	**% of Final Grade:**
Assignment 1	Practical game engine coding assignment	1-7	4-6	5	10%
Assignment 2	Practical game engine coding assignment	1-7	4-6	13	10%
Project	Game engine project - Milestone 1: Prototype - Milestone 2: Demo	1-7	4-6	 7 15	 25% 25%
Final Exam	Written test on code and theory	1-7	4-6	15	30%
TOTAL:					**100%**

Topical Outline

Learning Schedule / Topical Outline (subject to change with notification)

Week	**Topic / Task**	**Outcomes**	**Content / Activities**	**Resources**
1	- Animation Systems	1,2	Lab	GEA-Ch. 12
2	- Collision & Rigid Body Dynamics	1,2	Lab	GEA-Ch. 13
3	- Audio	1,2	Lab	GEA-Ch. 14
4	- Gameplay Systems	1,3	Lab	GEA-Ch. 15
5	- Runtime Gameplay Foundation Systems **- Assignment 1 Due**	1,3, 7	Lab	GEA-Ch. 16
6	- Game AI	4	Lab	GCC-Ch. 18

7	- Network Programming for Multiplayer Games **- Project Milestone 1 Due**	4, 7	Lab	GCC-Ch. 19
8	*INTERSESSION WEEK*			
9	- Multiprogramming	5	Lab	GCC-Ch. 20
10	- Game Editor	6	Lab	GCC-Ch. 22
11	- Finishing The Game	4, 6	Lab	GCC-Ch. 24
12	- Work Period	1-6	Review	
13	- Work Period **- Assignment 2 Due**	1-6, 7	Review	
14	- Work Period	1-6	Review	
15	**- Project Milestone 2 Due** **FINAL EXAM**	1-6, 7		

Please note: this schedule may change as resources and circumstances require.
For information on withdrawing from this course without academic penalty, please refer to the College Academic Calendar: **http://www.georgebrown.ca/Admin/Registr/PSCal.aspx**