

**DOUGLAS COLLEGE**  
**Course Outline**  
**CMPT 1267: COMPUTER GAME DEVELOPMENT I**  
**Fall 2023**

**Instructor: Mohammad Aboofazeli**

**COURSE MATERIALS**

**Textbook:** Game Programming in C++, Sanjay Madhav, Pearson, ISBN: 978-0-13-459720-1

**COURSE DESCRIPTION**

This course introduces students to computer programming methods for game development. Students will use a hands-on approach to learn practical programming concepts for interactive game design using an object-oriented programming language (such as C++), graphics libraries, and game engines. Topics include fundamental game concepts, an introduction to object-oriented programming for game development, basic 2D game graphics, and an introduction to modern game engines.

**COURSE OBJECTIVES**

Upon the completion of this course, successful students will be able to:

- Describe the game development lifecycle from a programming perspective;
- Explain the fundamental concepts behind games;
- Apply object-oriented programming techniques in the context of computer game development;
- Utilize an integrated development environment for game programming;
- Design and implement object-oriented programs for computer game development;
- Program logic and game mechanics with collisions and particle effects;
- Create game prototypes using game engines and graphics libraries;
- Build basic user interface elements and interactive menus for computer games.

**EVALUATION**

A final course grade will be determined based on the following instruments and their corresponding weighted percentages:

Labs	25%
Homework Assignments	10%
Final Project	10%
Mid-term examination	25%
Final examination	30%

**NOTE:** In order to pass the course, in addition to receiving an overall course grade of at least 50%, students must achieve a grade of at least 50% on the combined weighted examination components (midterm and final examinations).

**NOTE:** A student **MUST** attempt at least 70% of the total weighted percentage for this course, and **MUST** attempt the final exam, otherwise a grade of UN will be assigned. Please refer to the appropriate pages of the current year's College Calendar for additional information on transcript grades and the grading system.

## **REGULATIONS**

**Attendance and Participation:** Students are expected to attend, and actively participate in all class sessions.

**Class Announcements:** Students are responsible for class announcements concerning course assignment requirements, and/or schedule changes whether or not they are in attendance.

**Academic Dishonesty:** The Academic Dishonesty policy is available through the Douglas College website and will be the policy that is followed in this course.

**Working on Assignments:** In this class, all assignments are individual assignments. The instructor takes no responsibility for lost assignments. Backups of your work should always be kept on another storage device or computer.

**Late assignments:** Assignments must be handed in on or before the date and time specified on the assignment. Deadlines are strict.

**Missed exams:** Exams will be offered **ONLY** during the scheduled date and time of sitting. For any exception to be arranged the instructor must be notified **BEFORE** the time of the exam (by e-mail to or discussion with the instructor) and only for very good reasons (i.e. medical). The instructor may request to see proof of the reason for absence.

**The Final exam date and time will be announced later on the College Website. Please check the final exam schedule as soon as it becomes available for potential scheduling conflicts.**

## **Course Schedule**

<b>Semester Week</b>	<b>Topics</b>
<b>Week 1</b>	Basic game development concepts, Introduction to game development libraries, game loops, event-driven programming
<b>Weeks 2 and 3</b>	Scaling, texture, drawing shapes, adding text, rotation, viewport, audio
<b>Weeks 4 and 5</b>	Implementing a game class, game objects, inheritance, templates
<b>Week 6</b>	2D game graphics, color buffer, tick, frame rate, delta-time

<b>Week 7</b>	Scrolling backgrounds, movement implementation
<b>Week 8</b>	<b>Midterm Exam</b>
<b>Weeks 9 and 10</b>	Maps, actors, components, transforms, vectors
<b>Week 11</b>	Visual Scripting
<b>Weeks 12</b>	Game modes, lighting, modular level design
<b>Week 13</b>	Final Projects