



# Intro To Game Development

## **Introduction to Game Development**

In recent years, the landscape of technology and entertainment has evolved rapidly. One fascinating aspect that involves creativity, problem-solving, and cutting-edge technology is game development. Games have been an important part of our digital experience providing entertainment, education, and even social interaction.

Consider the vast array of video games, from story-driven adventures to fast-paced multiplayer competitions. Have you ever wondered about the coding and designs that bring these virtual worlds to life?

In this course, we will learn about the fundamentals of game development, which will involve exploring the programming side of games.

## **Course flow**

We'll start out our journey by introducing basic programming concepts like branching, iteration, conditional statements, object oriented programming, and other topics. Then we will learn how to use the Unity game engine, one of the most used game engines by solo developers and small teams, and even used in some of the largest AAA games sold today. We will apply what we learned in computer programming in order to use the Unity game engine in order to make creative and interesting games.

## **Class Schedule**

Saturdays 9:00am – 11:00am (online).

Class	Homework Review	Lecture & Class Work
Intro to Game Development	9:00 – 10:00 AM	10: 00 AM - 11: 00 AM

Please note that if you miss two classes in a row, you'll not be able to follow the topics anymore. Students must login 10 min before the start of the class.

## **Course Details**

**Pre-requisites:** Students must have their own desktop/laptop to code.

**Course Registration & Website:** Each student should register for the class using their own email

ID (Not parent's email ID). All course communication, homework submission will be through the course website.

**Class workload:** Apart from the 2 hours of class once every 2 weeks, students are expected to spend at least 1 hour every day of the week. If you can't make this commitment, please do not register. The course material to be covered is pretty heavy and if you fall behind, catching up is difficult.

**Class style:** Classes will be Zoom based in an interactive manner involving discussions and coding either individually or as a team. Instead of striving towards finishing a certain amount of material in each class, we'll work towards certain milestones which involve writing a few programs individually or as a team. During the course, online educational videos will be recommended as complementary to what is being taught in class.

**Homework Policy:** After each class, homework assignments will be mailed out. They are due 11 days from that day i.e., Wednesday of the next week. Most of the homework problems are fairly challenging, especially to those without any previous experience in programming. Please feel free to discuss homework problems with friends, parents or anyone else. But the final submission should be yours. Any sort of plagiarism will not be tolerated.

**Final Project Policy:** The final project is your opportunity to culminate all the skills that you have learned into a single project. It comprises 60% of your final grade which is graded on creativity, visuals and cohesiveness.

## **Syllabus:**

### **Module 1: Introduction to C# Programming**

#### **1. Class 1: Getting started with C#**

- Visual studio basics
  - Projects
  - Compiling
  - Running
- Data Types:
  - Strings
  - Integers
  - Booleans
  - Doubles

#### **2. Class 2: Intro to C# Part 2**

- Loops:
  - While
  - For
  - For each
- Conditionals:
  - If

- Else
- Else If

### **3. Class 3: Intro to C# Part 3**

- Object Oriented Programming:
  - Idea of an Object
  - Classes / Structs
  - Methods
  - Fields

### **4. Class 4: Intro to Unity Part 1**

- Unity Interface
  - Hierarchy
    - Adding, removing gameobjects
  - Scene view
    - Manipulating gameobjects
  - Game view
    - Pause, play, step buttons
  - Inspector
  - Project folder
  - Console
- Unity game structure
  - parent/child gameobjects
  - Scenes

### **5. Class 5: Class Example 1**

- Monobeaviours
- Components
- User input
- Character Controllers

### **6. Class 6: Class Example 2**

- Making an environment
  - Instantiating game objects
  - Trigger hitboxes
- Physics
  - Rigid Bodies
  - Forces
  - Locking rotations

### **7. Class 7: Group Project First Day**

- Github Basics
  - Setup
  - Push/Pull (Commits)
  - Override Errors
- Start Slide Presentation
- Prompt

### **8. Class 8: Group Project Second Day**

- Assistance

## **9. Class 9: Group Project Final Day**

- Final assistance
- Presentation
  - Slides
  - Demo