

UNITY GAME DEVELOPMENT

Led by Shah Abdullah, CEO Phantom Cave Studio

Overview

This course is designed to provide students with both theoretical knowledge and practical skills in Unity game development. It spans 99 credit hours, covering core areas such as Unity interface and workflow, C# programming, physics systems, game architecture, GUI development, scene management, optimization, and multi-platform deployment.

The Course Learning Outcomes (CLOs) are mapped to Bloom's Taxonomy, ensuring that students progress from foundational understanding to higher-order cognitive skills, including analysis, evaluation, and creation.

Modules

➔ Module 1: Unity Fundamentals

- Unity & Visual Studio setup
- Interface and workspace understanding
- Creating basic game objects
- Game development roadmap
- Version control (Git)
- Mini game module development

➔ Module 2: C# Programming in Unity

- Basics of C# and scripting
- Variables, functions, and classes
- Object-Oriented Programming (OOP)
- Unity scripting & callbacks
- Unity Asset Store usage

Modules

➔ Module 3: Physics & Advanced Programming

- Physics concepts and implementation
- Object instantiation and runtime generation
- Raycasting and collision systems
- Coroutines and asynchronous programming
- Interfaces, structures, and abstraction

➔ Module 4: Game Architecture & Systems

- Unity events and actions
- Script communication
- Design patterns (Observer, Singleton, State Machines)
- Animators and transitions
- Data structures and collections

➔ Module 5: GUI & User Experience

- User interaction fundamentals
- GUI system creation
- Animations and transitions
- Designing user flow

➔ Module 6: Game Flow & Data Management

- Data persistence techniques
- Scriptable Objects
- Scene management and transitions
- Structuring game flow

➔ Module 7: Deployment & Optimization

- Platform understanding and binaries
- Platform-specific configurations
- Performance optimization techniques
- Game compression
- Publishing and monetization basics

LEARNING OUTCOMES

By the end of this program, students will be able to:

- ➔ Understand Unity tools, interface, and game object creation (C2 – Understand)
- ➔ Apply C# programming and OOP concepts in Unity projects (C3 – Apply)
- ➔ Implement physics systems and object interactions (C3 – Apply)
- ➔ Design scalable game architecture using events and patterns (C4 – Analyze)
- ➔ Develop interactive GUI systems (C3 – Apply)
- ➔ Manage game flow using scenes and Scriptable Objects (C4 – Analyze)
- ➔ Optimize and deploy games across multiple platforms (C5 – Evaluate)
- ➔ Integrate monetization and basic game economy (C5 – Evaluate)
- ➔ Build and present a complete game project (C6 – Create)

LEARNING FRAMEWORK

This program follows Bloom's Taxonomy, guiding students from foundational understanding to advanced skills like analysis, evaluation, and creation.

PROGRAM DETAILS

FEE: PKR 25,000

DAY: WEDNESDAY

TIME: 3PM - 6PM