BİL202 - VISUAL PROGRAMMING III - Meslek Yüksekokulu - Bilgisayar Teknolojileri Bölümü

General Info

Objectives of the Course

The Visual Programming 3 course aims to teach students the basic structures of the Unity game engine, the C# programming language, and game development processes. At the end of this course, students will be able to create interactive game mechanics, enrich their games with user interfaces (UI), animations, sound effects, and background music, and turn them into a publishable game. They will also gain practical knowledge and skills for every stage of the game development process, gaining a solid foundation in game design and software development.

Course Contents

The Visual Programming 3 course teaches students the basic structures of the Unity game engine and how to develop interactive games using the C# programming language. The course content includes basic topics such as scene management, physics interactions, user interfaces (UI), sound effects, and integration of animations into games. In addition, students will learn features such as game mechanics, collisions, and scene transitions, aiming to prepare their games for publication and successfully manage every stage of the game development process.

Recommended or Required Reading

- M. Furkan A., (2017), C# ile Görsel Programlama, Abaküs - Barış Şaybak, 2022, Unity 2D Kullanarak C# Öğrenin - Mehmet Ünsal, 2019, Uygulamalarla Unity 3D ve Android ile Oyun Geliştirme Projector, Computer

Planned Learning Activities and Teaching Methods

Lecture, Q&A, Practice, Problem Solving

Recommended Optional Programme Components

The course should be actively followed and notes should be taken Code should be written regularly and practiced Small scale projects should be developed for the beginning

Instructor's Assistants

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Presentation Of Course

The course will be given in the computer laboratory in the form of topic explanation, example solutions and application development.

Dersi Veren Öğretim Elemanları

Inst. Kadir Aba

Program Outcomes

1. Develop a Simple Game Project Using the Basic Structures and Components of the Unity Game Engine
2. You can create interactive game mechanics and control systems in Unity with C# programming.
3. Unity Project Can Be Turned Into a Publishable Game by Supporting It with Sound, Animation and User Interface

Weekly Contents

Order	PreparationInfo	Laboratory	TeachingMethods	Theoretical	Practise
1	-> Resources: The topic of the relevant week from the resources uploaded to the system -> The topic of the relevant week from the recommended resources	Introduction to Unity and Game Engine Concepts	Telling Method, Showing and Doing Method, Discussion Method, Problem Solving Method, Individual Study Method, Question and Answer, Observation	Introduction to Unity and Game Engine Concepts	Introduction to Unity and Game Engine Concepts
2	-> Resources: The topic of the relevant week from the resources uploaded to the system -> The topic of the relevant week from the recommended resources	Unity Interface and Scene Management	Telling Method, Showing and Doing Method, Discussion Method, Problem Solving Method, Individual Study Method, Question and Answer, Observation	Unity Interface and Scene Management	Unity Interface and Scene Management
3	-> Resources: The topic of the relevant week from the resources uploaded to the system -> The topic of the relevant week from the recommended resources	GameObject and Component Structure	Telling Method, Showing and Doing Method, Discussion Method, Problem Solving Method, Individual Study Method, Question and Answer, Observation	GameObject and Component Structure	GameObject and Component Structure
4	-> Resources: The topic of the relevant week from the resources uploaded to the system -> The topic of the relevant week from the recommended resources	Transform, Rigidbody and Physics Interactions	Telling Method, Showing and Doing Method, Discussion Method, Problem Solving Method, Individual Study Method, Question and Answer, Observation	Transform, Rigidbody and Physics Interactions	Transform, Rigidbody and Physics Interactions

Order	PreparationInfo	Laboratory	TeachingMethods	Theoretical	Practise
5	-> Resources: The topic of the relevant week from the resources uploaded to the system -> The topic of the relevant week from the recommended resources	Introduction to Unity Scripting with C#	Telling Method, Showing and Doing Method, Discussion Method, Problem Solving Method, Individual Study Method, Question and Answer, Observation	Introduction to Unity Scripting with C#	Introduction to Unity Scripting with C#
6	-> Resources: The topic of the relevant week from the resources uploaded to the system -> The topic of the relevant week from the recommended resources	Input Systems and Player Movement	Telling Method, Showing and Doing Method, Discussion Method, Problem Solving Method, Individual Study Method, Question and Answer, Observation	Input Systems and Player Movement	Input Systems and Player Movement
7	-> Resources: The topic of the relevant week from the resources uploaded to the system -> The topic of the relevant week from the recommended resources	Collisions, Triggers and Simple Interactions	Telling Method, Showing and Doing Method, Discussion Method, Problem Solving Method, Individual Study Method, Question and Answer, Observation	Collisions, Triggers and Simple Interactions	Collisions, Triggers and Simple Interactions
8				Midterm Exam	
9	-> Resources: The topic of the relevant week from the resources uploaded to the system -> The topic of the relevant week from the recommended resources	UI (User Interface) Systems	Telling Method, Showing and Doing Method, Discussion Method, Problem Solving Method, Individual Study Method, Question and Answer, Observation	UI (User Interface) Systems	UI (User Interface) Systems
10	-> Resources: The topic of the relevant week from the resources uploaded to the system -> The topic of the relevant week from the recommended resources	Sound Effects and Background Music	Telling Method, Showing and Doing Method, Discussion Method, Problem Solving Method, Individual Study Method, Question and Answer, Observation	Sound Effects and Background Music	Sound Effects and Background Music
11	-> Resources: The topic of the relevant week from the resources uploaded to the system -> The topic of the relevant week from the recommended resources	Animations and Using Animator	Telling Method, Showing and Doing Method, Discussion Method, Problem Solving Method, Individual Study Method, Question and Answer, Observation	Animations and Using Animator	Animations and Using Animator
12	-> Resources: The topic of the relevant week from the resources uploaded to the system -> The topic of the relevant week from the recommended resources	Stage (Level) Transitions and Scene Management	Telling Method, Showing and Doing Method, Discussion Method, Problem Solving Method, Individual Study Method, Question and Answer, Observation	Stage (Level) Transitions and Scene Management	Stage (Level) Transitions and Scene Management
13	-> Resources: The topic of the relevant week from the resources uploaded to the system -> The topic of the relevant week from the recommended resources	Scoring System and Game Data Tracking	Telling Method, Showing and Doing Method, Discussion Method, Problem Solving Method, Individual Study Method, Question and Answer, Observation	Scoring System and Game Data Tracking	Scoring System and Game Data Tracking
14	-> Resources: The topic of the relevant week from the resources uploaded to the system -> The topic of the relevant week from the recommended resources	Game Publishing and Build, General Review and Final Exam Preparation	Telling Method, Showing and Doing Method, Discussion Method, Problem Solving Method, Individual Study Method, Question and Answer, Observation	Game Publishing and Build, General Review and Final Exam Preparation	Game Publishing and Build, General Review and Final Exam Preparation
15				Final Exam	

Workload

Activities	Number	PLEASE SELECT TWO DISTINCT LANGUAGES
Derse Katılım	14	4,00
Vize	1	1,00
Final	1	1,00
Ara Sınav Hazırlık	1	5,00
Final Sınavı Hazırlık	1	6,00
Diğer	4	3,00
Ödev	3	3,00

Assesments

Activities	Weight (%)
Ara Sınav	40,00
Final	60,00

Bilgisayar Teknolojileri Bölümü / BİLGİSAYAR PROGRAMCILIĞI X Learning Outcome Relation

	P.O. 1	P.O. 2	P.O. 3	P.O. 4	P.O. 5	P.O. 6	P.O. 7	P.O. 8	P.O. 9	P.O. 10	P.O. 11	P.O. 12	P.O. 13	P.O. 14	P.O. 15
L.O. 1	5		5	5											
L.O. 2	5			5											
L.O. 3			5	5	5										

Table :

P.O. 1 : Mesleği ile ilgili temel, güncel ve uygulamalı bilgilere sahip olur

P.O. 2 : İş sağlığı ve güvenliği, çevre bilinci ve kalite süreçleri hakkında bilgi sahibi olur

P.O. 3 : Mesleği için güncel gelişmeleri ve uygulamaları takip eder, etkin şekilde kullanır

P.O. 4 : Mesleği ile ilgili bilişim teknolojilerini (yazılım, program, animasyon vb.) etkin kullanır

P.O. 5 : Mesleki problemleri ve konuları bağımsız olarak analitik ve eleştirel bir yaklaşımla değerlendirme ve çözüm önerisini sunabilme becerisine sahiptir

P.O. 6 : Bilgi ve beceriler düzeyinde düşüncelerini yazılı ve sözlü iletişim yolu ile etkin biçimde sunabilir, anlaşılır biçimde ifade eder

P.O. 7 : Alanı ile ilgili uygulamalarda karşılaşılan ve öngörülemeyen karmaşık sorunları çözmek için ekip üyesi olarak sorumluluk alır

P.O. 8 : Kariyer yönetimi ve yaşam boyu öğrenme konularında farkındalığa sahiptir

P.O. 9 : Alanı ile ilgili verilerin toplanması, uygulanması ve sonuçlarının duyurulması aşamalarında toplumsal, bilimsel, kültürel ve etik değerlere sahiptir

P.O. 10 : Bir yabancı dili kullanarak alanındaki bilgileri takip eder ve meslektaşları ile iletişim kurar

P.O. 11 : Algoritma ve veri yapılarını oluşturur ve matematiksel hesapları yapar

P.O. 12 : Web programlama teknolojilerini açıklar ve uygular

P.O. 13 : Veri tabanı tasarımı ve yönetimini gerçekleştirir

P.O. 14 : Yazılımları test eder ve hataları giderir

P.O. 15 : Türkiye Cumhuriyeti tarihi ve Atatürk İlkeleri ve İnkılâpları hakkında bilgi sahibi olur

L.O. 1 : Unity Oyun Motorunun Temel Yapılarını ve Bileşenlerini Kullanarak Basit Bir Oyun Projesi Geliştirebilir

L.O. 2 : C# Programlama ile Unity İçinde Etkileşimli Oyun Mekanikleri ve Kontrol Sistemleri Oluşturabilir

L.O. 3 : Unity Projesini Ses, Animasyon ve Kullanıcı Arayüzü ile Destekleyerek Yayınlanabilir Bir Oyun Haline Getirebilir