DEREE COLLEGE SYLLABUS FOR: ITC 2053 INTRODUCTION TO GAME PROGRAMMING

US CREDITS: 3/0/3

(Previously ITC 2153 Introduction to Game Development)
(Updated Fall 2021)

PREREQUISITES:	None
COREQUISITES:	None
CATALOG DESCRIPTION:	Game programming fundamentals; basic 3D graphics concepts; combining and utilizing multimedia content using a game engine; creating and editing scripts using appropriate programming / scripting languages and techniques.
RATIONALE:	This is a project-oriented course aiming to expose students to essential game programming using an established game engine as a platform. Students will be introduced to the game programming and development process; they will learn how to use the game engine in order to develop games combining 2D and 3D models and other multimedia assets and program their in-game behaviour. The course addresses students who are interested in game development and do not necessarily possess advanced programming skills.
LEARNING OUTCOMES:	As a result of taking this course, the student should be able to: 1. Apply fundamental programming concepts and techniques towards the creation of simple games. 2. Integrate media elements including graphics, video and audio using an established game engine. 3. Use a programming language to animate and control game objects. 4. Demonstrate understanding of the development process and workflow for a game created in an established game engine.
METHOD OF TEACHING AND LEARNING:	In congruence with the teaching and learning strategy of the college, the following tools are used: • Lectures and laboratory sessions. • Office hours held by the instructor to provide further assistance to students. • Use of the online content management system (Blackboard CMS) to further facilitate communication.
ASSESSMENT:	**Summative:** | 1st assessment: Coursework	20%
Final assessment: Individual project Development of a functional video game using a game engine	80% | **Formative:** | Take-home case problems	0%
---	---	 The formative assessments aim to shape teaching and prepare students for the summative assessments. The 1st summative assessment tests LOs 2, 3. The final summative assessment tests LOs 1-4.

	The final grade for this module will be determined by averaging all summative (major) assessment grades, based on predetermined weights for each assessment. If the average grade is 40 and above, students pass the module. No resits for non-validated modules.
INDICATIVE READING:	**REQUIRED READING:** 1. Feronne H. (2020). *Learning C# by Developing Games with Unity 2020*, 5th edition, Packt Publishing, Kindle edition available 2. Instructor's notes and online material. **RECOMMENDED READING:** 1. Smith, M. & Ferns, S. (2021). Unity 2021 Cookbook. Packt Publishing. 2. Romero, M. (2019). Blueprints Visual Scripting (2nd edition). Packt Publishing. 3. Hill-Whittall, R. (2015). *The Indie Game Developer Handbook*. Focal Press 4. Geig, M. (2021). *Sams Teach Yourself Unity Game Development in 24 Hours*. Indianapolis, ID: Sams 5. Hill-Whittall, R. (2015). The Indie Game Developer Handbook. Focal Press 6. Nystrom, R. (2014). Game Programming Patterns. 7. Vaughan, W. (2012). Digital Modelling, New Riders.
INDICATIVE MATERIAL: *(e.g. audiovisual, digital material, etc.)*	**REQUIRED MATERIAL**: Unity Tutorial for Beginners https://www.youtube.com/watch?v=7K2SMZQRKnw Coding in C# in Unity for beginners https://unity3d.com/learning-c-sharp-in-unity-for-beginners **RECOMMENDED MATERIAL:** C# Tutorial Point https://www.tutorialspoint.com/csharp/csharp_overview.htm
COMMUNICATION REQUIREMENTS:	Daily access to the course's site on the College's Blackboard CMS and acg email. Effective communication using proper written and oral English. Use of word processing and presentation graphics SW for documentation and presentation of deliverables and the final project.
SOFTWARE REQUIREMENTS:	MS-Office MS-Visio
WWW RESOURCES:	• http://unity3d.com • http://www.3dbuzz.com/training/view/unity-fundamentals • http://stackoverflow.com/

INDICATIVE CONTENT:	1. Overview
	   a. Overview of the overall development process and workflow
	   b. Overview of interface and functionality
	2. Introduction to programming concepts
	   a. Creating and editing scripts
	   b. Comparison of programming languages

	3. Programming: variables and functions
	4. Programming: control statements
	5. Object-oriented programming
	6. 3D graphics concepts
	7. Handling content
	8. 3D game objects and animation essentials
	9. Using audio and video
	10. Basics of building projects
	11. Advanced concepts in game programming