STATE UNIVERSITY OF NEW YORK
COLLEGE OF TECHNOLOGY
CANTON, NEW YORK

MASTER SYLLABUS

GAME 260 – Unity Development 3: 3D Game Development

For available course numbers, contact the Registrar's Office at registrar@canton.edu

CIP Code: 11.0202

For assistance determining CIP Code, please refer to this webpage
https://nces.ed.gov/ipeds/cipcode/browse.aspx?y=55
or reach out to Sarah Todd at todds@canton.edu

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School: Canino School of Engineering Technology
Department: Decision And Graphics Media Systems
Implementation Semester/Year: Fall 2027

A. TITLE: Unity Development 3: 3D Game Development

B. COURSE NUMBER: GAME 260

C. CREDIT HOURS (Hours of Lecture, Laboratory, Recitation, Tutorial, Activity):

# Credit Hours per Week	3
# Lecture Hours per Week	3
# Lab Hours per Week	
Other per Week	0

D. WRITING INTENSIVE COURSE:

Yes	
No	x

E. GER CATEGORY:

Does course satisfy a GER category(ies)? If so, please select all that apply.

[1-2] Communication	
[3] Diversity: Equity, Inclusion & Social Justice	
[4] Mathematics & Quantitative Reasoning	
[5] Natural Science & Scientific Reasoning	
[6] Humanities	
[7] Social Sciences	
[8] Arts	
[9] US History & Civic Engagement	
[10] World History & Global Awareness	
[11] World Languages	

F. SEMESTER(S) OFFERED:

Fall	
Spring	x
Fall and Spring	

G. COURSE DESCRIPTION:

This course builds on the foundations of gameplay programming and Unity development introduced in the first level. Students will begin by exploring matrix computation and the graphics pipeline, gaining insight into how 3D transformations and rendering work behind the scenes. Students will then strengthen their skills in C# and Object-Oriented Programming while tackling more advanced topics such as game managers, input systems, advanced collisions, and physics. The course further expands into complex gameplay systems, including FPS (first person shooter) controllers, shooting mechanics, interactions, particle effects, user interfaces, and Artificial Intelligence with 3D navigation.

H. PRE-REQUISITES: GAME 215
CO-REQUISITES: None

I. STUDENT LEARNING OUTCOMES:

Course Student Learning Outcome [SLO]	Program Student Learning Outcome [PSLO]	GER	ISLO & Subsets
a. Identify and use Object oriented design principles	PSLO3 - Students will work on building a game prototype from scratch		2
b. Demonstrate advanced C# programming core principles.	PSLO8 - Demonstrate an understanding of recent principles of game design, including advanced C# programming		5
c. Demonstrate matrix operations for graphics.	PSLO8 - Demonstrate an understanding of recent principles of game design, including advanced C# programming		5
d. Demonstrate implementation of complex algorithms and game mechanics	PSLO8 - Demonstrate an understanding of recent principles of game design, including advanced C# programming		5
e. Practice game world and navigation system with modern AI development	PSLO7 - Students understand of modern AI tools like navigation and visibility		5

KEY	Institutional Student Learning Outcomes [ISLO 1 – 5]
ISLO #	ISLO & Subsets

1	**Communication Skills** Oral [O], Written [W]
2	**Critical Thinking** *Critical Analysis [CA], Inquiry & Analysis [IA] , Problem Solving [PS]*
3	**Foundational Skills** *Information Management [IM], Quantitative Lit, /Reasoning [QTR]*
4	**Social Responsibility** *Ethical Reasoning [ER], Global Learning [GL],* *Intercultural Knowledge [IK], Teamwork [T]*
5	**Industry, Professional, Discipline Specific Knowledge and Skills**

J. APPLIED LEARNING COMPONENT:

Yes	x
No	

If yes, select [X] one or more of the following categories:

Non-Clinical Practicum	x	Community Service	
Internship		Civic Engagement	
Clinical Practicum		Creative Works/Senior Project	
Practicum		Research	
Service Learning		Entrepreneurship [program, class, project]	

K. TEXTS: None.

L. REFERENCES: Free online documentation.

M. EQUIPMENT: PC or laptop, with Unity, Visual Studio and Notepad++. OBS for screen/video recording.

N. GRADING METHOD: A - F

O. SUGGESTED MEASUREMENT CRITERIA/METHODS: Assignments, midterm exam and final project.

P. DETAILED COURSE OUTLINE:

Week 1: Syllabus and introduction to Unity (hardware/software check and engine overview)

Week 2: C# and OOP review (part 1)

Week 3: C# and OOP review (part 2) + Assignment 1 (graded)

Week 4: Project setup and game manager

Week 5: Advanced input system, physics and collisions + Assignment 2 (graded)

Week 6: Player and camera controllers

Week 7: Midterm exam

Week 8: Interaction and collection

Week 9: Shooting system + Assignment 3 (graded)

Week 10: Particle systems and UI

Week 11: Artificial Intelligence and 3D navigation (part 1) + Assignment 4 (graded)

Week 12: Artificial Intelligence and 3D navigation (part 2)

Week 13: Final exam-project

Week 14: Final exam-project – assistance to students

Week 15: Final exam-project delivery

Q. LABORATORY OUTLINE: