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

MASTER SYLLABUS

GAME 240 3D Environments for Games

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CANINO SCHOOL OF ENGINEERING TECHNOLOGY
DECISION SYSTEMS
Spring 2023

A. **TITLE**: 3D Graphics for Game Development, Suggested title, 3D Environments for Games

B. **COURSE NUMBER:** GAME 240

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

 # Credit Hours: 3
 # Lecture Hours: 2 per week%
 # Lab Hours: per week
   Other: (1) two-hour recitation **per week**

Course Length: 15 Weeks

D. **WRITING INTENSIVE COURSE**: No

E. **GER CATEGORY:**

F. **SEMESTER(S) OFFERED:** Spring

G. **COURSE DESCRIPTION:**
Game 240 is an environment modeling class for the gaming industry. Presuming no experience with Maya, Photoshop, or Unreal editor, students will start with the basics of each program and learn how to create environments with modular components that would be ready to be coded.

Students will gain proficiency in modeling and UV mapping in Maya, and texturing in photoshop, and how to import meshes into Unreal to create detailed environments. Students will learn how to design different kinds of environments, model meshes and create textures and create materials and basic nodal networks.

H. **PRE-REQUISITES/CO-REQUISITES:**

a. Pre-requisite(s):
b. Co-requisite(s):
c. Pre- or co-requisite(s):

I. STUDENT LEARNING OUTCOMES:

II. *Course Student Learning Outcome [SLO]*	*PSLO*	*GER*	*ISLO*
a. Develop game assets using professional gaming software.	**PSLO 8** Demonstrate an understanding of recent principles of game design, including, programming, narrative, character and level design.		5
b. Demonstrate proper design process procedures.	**PSLO 6** Use the design process: Concept, Design, Prototype, Production, Testing and Revision to evaluate, and implement strategies to find a solution to a problem.		5
c. Demonstrate proper testing and troubleshooting techniques.	**PSLO 4** Recognize the underlying principles guiding the relevant visual, audio, interactive, and narrative aesthetics of an animation or a game		2 *[IA]*
d. Examine current trends in game design	**PSLO 5** Synthesize trends, theories, movements and advancements in technology in the development of new ideas.		2 *[IA]*
e. Apply gaming principles of visual Narrative dynamics and mechanics to a final project.	**PSLO 8** Demonstrate an understanding of recent principles of game design, including, programming, narrative, character and level design.		*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_____**

K.   %   **TEXTS:**
   No texts except for handouts by instructor.

L. %   **REFERENCES:**
   No references except for handouts by instructor.

M. %   **EQUIPMENT:**
   PC Computer Lab Autodesk Maya, Adobe Photoshop, Epic Games Unreal Engine and Editor.

N. %   **GRADING METHOD:** A-F

O. %   **SUGGESTED MEASUREMENT CRITERIA/METHODS:**
   - Assignments
   - Projects
   - Participation

P. <u>**DETAILED COURSE OUTLINE**</u>**:**

a. **The gaming industry**
- What to expect when you're expecting a career in gaming
- Roles in the industry

b. **Software and hardware usage in games**
- Autodesk Maya
- Adobe Photoshop
- Epic Games Unreal Engine Editor

c. **Modelling**
- Environment meshes and objects, architectural/organic/inorganic
- Polygon and vertex count matters
- Texturing environments and objects
- Project: Making an environment with objects

d. **Shaders/materials**
- maps: bump/normal, specularity, ambient occlusion, reflection, **alpha channels,** etc.
- including unreal shaders for painting on meshes and animated shaders for foliage

e. **Texturing**
- Libraries, version control, sizes, formats, and tillable textures

f. **Lighting**
- placing and using lights

g. **Different kinds of environments**
- modular construction
- design of the environment; Make a static environment come alive with a story

h. **Environment project in unreal**

Q. <u>**LABORATORY OUTLINE**</u>**:**
None