

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



MASTER SYLLABUS

GAME 210 Object-Oriented Design for Game Development

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**CANINO SCHOOL OF ENGINEERING TECHNOLOGY
DECISION SYSTEMS
FALL 2018**

A. **TITLE:** Object-Oriented Design for Gaming

B. % **COURSE NUMBER:** GAME 210

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:** Fall

G. **COURSE DESCRIPTION:**

This course includes programming assignments and a game design project, which will give students an opportunity to practice different roles inside a game development team, and help them to gain practical knowledge of developing game projects through using object-oriented software design pipelines.

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

a. Pre-requisite(s): GAME 130

b. Co-requisite(s):

c. Pre- or co-requisite(s):

I. % **STUDENT LEARNING OUTCOMES:**

<u>Course Student Learning Outcome [SLO]</u>	<u>PSLO</u>	<u>GER</u>	<u>ISLO</u>
a. Identify object-oriented design ideas and pipelines	PSLO 8 Demonstrate an understanding of recent principles of game design, including, programming, narrative, character and level design.		5
b. Apply proper knowledge and skills of object-oriented programming to game design and development	PSLO 8 Demonstrate an understanding of recent principles of game design, including, programming, narrative, character and level design.		5
c. Demonstrate hands-on techniques and skills of testing and troubleshooting	PSLO 4 Recognize the underlying principles guiding the relevant visual, audio, interactive, and narrative aesthetics of an animation or a game		2 [CA][IA] [PS]
d. Explore proper object-oriented design, component model, and design-driven control techniques.	PSLO 3 Students will explore, evaluate, and analyze assigned projects through group critique.		2 [CA][IA] [PS]
e. Implement algorithms of object-oriented game design and interactive development techniques for game development.	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.		2 [PS]

KEY	<u>Institutional Student Learning Outcomes [ISLO 1 – 5]</u>
ISLO #	ISLO & Subsets
1	Communication Skills Oral [O], Written [W]
2	Critical Thinking <i>Critical Analysis [CA] , Inquiry & Analysis [IA] , Problem Solving [PS]</i>
3	Foundational Skills <i>Information Management [IM], Quantitative Lit./Reasoning [QTR]</i>
4	Social Responsibility <i>Ethical Reasoning [ER], Global Learning [GL], Intercultural Knowledge [IK], Teamwork [T]</i>
5	Industry, Professional, Discipline Specific Knowledge and Skills

J. **APPLIED LEARNING COMPONENT:** Yes ___X___ No _____

K. % **TEXTS:**

Object-Oriented Game Development (1st Edition) by Julian Gold (Author). Publisher: Addison Wesley (1 April 2004). ISBN-10: 032117660X ISBN-13: 978-0321176608

L. % **REFERENCES:**

Practical C++ Programming with Game Development by Scott Tozer (Author). Publisher: The Readers Sanctuary Publications (26 Oct. 2014). ASIN: B00OXDZGUE

Introduction to Programming with Greenfoot: Object-Oriented Programming in Java with Games and Simulations by Michael Kölling (Author). Publisher: Pearson; 2 Edition (26 Feb. 2015). ISBN-10: 0134054296, ISBN-13: 978-0134054292.

M. % **EQUIPMENT:**

L. % PC Computer Lab with Microsoft Office, Unity, Visual Studio, and NVidia graphics hardware installed.

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

O. % **SUGGESTED MEASUREMENT CRITERIA/METHODS:**

- Assignments
- Projects
- Quizzes
- Exams
- Participation

P. DETAILED COURSE OUTLINE:

1. ! Introduction
 - a. ! Introduction of the high-level overview of object-oriented programming for game design and development
 - b. ! Introduction to the Computer Lab and related graphics hardware and software for game development
 - c. ! Syllabus
2. ! Object-oriented design (OOD)
 - a. Event-based programming
 - b. Resource management
 - c. Animation
3. ! Object-oriented programming (OOP)
 - a. ! Physics
4. ! The game development process
5. ! Software engineering for games
 - a. Components in a game or game engine.
 - b. Open source game engine components.
6. ! Object-oriented design for games I
7. ! Object-oriented design for games II
8. ! The component model for game development
9. ! Cross-platform development
10. Game objects
11. Design-driven control
12. Iterative development techniques
13. Game development roles
 - a. ! Designer
 - b. ! Programmer
 - c. ! Level Designer
 - d. ! Character Designer
14. Case study
15. Final Project Due

Q. LABORATORY OUTLINE:

None