



**ATENEO DE MANILA
UNIVERSITY**
Loyola Schools

**SYLLABUS FOR UNDERGRADUATE COURSES
MAJOR, CORE CURRICULUM and ELECTIVES**

A. COURSE INFORMATION

COURSE NUMBER	GDEV 41 / CS 179.14A			NO. OF UNITS	3
COURSE TITLE	PC AND CONSOLE GAME DEVELOPMENT 1 / SPECIAL TOPICS IN MULTIMEDIA: PC AND CONSOLE GAME DEVELOPMENT I				
PREREQUISITE/S					
DEPARTMENT/ PROGRAM	DISCS			SCHOOL	SOSE
SCHOOL YEAR	SY 2020-2021			SEMESTER	1st
INSTRUCTOR/S	Ortega, Victor Antonio M.				
VENUE	Online	SECTION	A-Q2	SCHEDULE	T-TH 0930-1100

B. COURSE DESCRIPTION

The course focuses on the fundamentals of PC game programming to complement the skills learned mostly in GDEV 30: Computer Graphics Programming but also uses some concepts in CSCI 51 and CSCI 71. Students will learn how to build a game from scratch in order to gain a deep understanding of their architecture and components, as opposed to using a premade game-making software. The format of the lesson will be a mix of lectures followed-by hands-on implementation. By the end of the semester, the students should be able to produce a non-trivial game.

WHERE IS THE COURSE SITUATED WITHIN THE FORMATION STAGES IN THE FRAMEWORK OF THE LOYOLA SCHOOLS CURRICULA	
X	FOUNDATIONS: Exploring and Equipping the Self
X	ROOTEDNESS: Investigating and Knowing the World
	DEEPENING: Defining the Self in the World
	LEADERSHIP: Engaging and Transforming the World

C. COURSE LEARNING OUTCOMES

Alignment of the Course to the Core Curriculum Learning Outcomes

The Ideal Ateneo Graduate: A Person of Conscience Competence Compassion Commitment							
CCLO 1	CCLO 2	CCLO 3	CCLO 4	CCLO 5	CCLO 6	CCLO 7	CCLO 8
X	X	X				X	

By the end of this course, students should be able to:

COURSE LEARNING OUTCOMES
CLO1: Create, compile, and debug native applications on various platforms
CLO2: Prototype gameplay in a short amount of time
CLO3: Apply various architectures to make their game scale
CLO4: Apply mathematics to solve certain challenges in game programming

D. COURSE OUTLINE and LEARNING HOURS

Course Outline	CLOs	Estimated Contact or Learning Hours
1: Introduction and C/C++ Review	CLO 1, 2	8
2: Game Loop and Timing	CLO 1, 2, 3	5
3: Input Testing	CLO 1, 2, 3	5
4: Physics	CLO 3, 4	5
5: Collision Detection	CLO 1, 3, 4	5
6: Audio	CLO 1, 3	5
7: Finals Game Project	CLO 1, 2, 3, 4	8

E. ASSESSMENTS AND RUBRICS

Assessment Tasks	Assessment Weight	CLOs
Quizzes & Homework	60%	CLO 1, 2, 3, 4
Project Consultations	5%	CLO 1, 2
Project	20%	CLO 1, 2, 3, 4
Project Defense	15%	CLO 1, 2, 3, 4

RUBRICS

Project	
Game Design	35%
Game Mechanics	35%
Programming (Bug-free)	20%
Code & Documentation	10%

F. TEACHING and LEARNING METHODS

TEACHING & LEARNING METHODS and ACTIVITIES	CLOs
Downloadable Lecture Slides	CLO 1, 2, 3, 4
Discussions & Debug Sessions	CLO 1, 2, 3, 4
Individual Exercises	CLO 1, 2, 3, 4
Group Homework	CLO 1, 2, 3, 4

G. REQUIRED READINGS

All lecture slides and announcements can be found at the course web site on Moodle.

H. SUGGESTED READINGS

Game Programming Patterns by Robert Nystrom (ISBN-13: 978-0990582908), 2014 (available online for free at <http://gameprogrammingpatterns.com>)

C++Now 2014 Presentations:

https://github.com/boostcon/cppnow_presentations_2014

Game Engine Architecture, by Jason Gregory, Jeff Lander and Matt Whiting, A K Peters (ISBN-13: 978-1568814131), 2009

Real-time Collision detection by David H. Eberly, Morgan Kaufmann (ISBN-13: 978-1558607323), 2005

Computer Graphics using OpenGL, 2nd Ed by F.S. Hill, Prentice Hall (ISBN: 0-02-354856-8), 2001
Ten C++11 Features Every C++ Developer Should Use:

<http://www.codeproject.com/Articles/570638/Ten-Cplusplus-Features-Every-Cplusplus-Developer>

Game Programming Gems series

Game Engine Gems series

Glenn Fiedler's Game Development Articles and Tutorials: <http://gafferongames.com/>

The Witness: <http://the-witness.net/news/>

Wolfire Games Blog: <http://blog.wolfire.com/>

Gamasutra: <http://www.gamasutra.com/>

Game Physics by David H. Eberly, Morgan Kaufmann

Thinking in C++ 2nd Ed. (Eckel, Bruce):

<http://www.mindview.net/Books/TICPP/ThinkingInCPP2e.html>

C++ FAQ lite: <http://www.parashift.com/c++-faq-lite/>

What Every Computer Scientist Should Know About Floating-Point Arithmetic

http://docs.oracle.com/cd/E19957-01/806-3568/ncg_goldberg.html

A Primer on Bézier Curves <http://pomax.github.io/bezierinfo>

Standard C++ <https://isocpp.org/>

I. GRADING SYSTEM

The undergraduate grading system will be used.

In addition, numeric grades higher than 60 will be rounded up.

93-100	A	Excellent
87-92	B+	Very Good
81-86	B	Good
75-80	C+	Satisfactory
69-74	C	Sufficient
60-68	D	Passing
< 60	F	Failure

J. CLASS POLICIES

1. Students should check the course website on Moodle for class updates.
2. If we are going to give something like a quiz or an assignment, there will always be a 2-3 day minimum allowance before the deadline.
3. No make-up exams or exercise/project deadline extension unless you were hospitalized or an immediate member of your family died (grandparents and legal guardians included) or there were circumstances that prevented you from coming to class. Adequate proof must be provided (e.g. medical certificate, news report) and the hospitalization/wake/disaster/aftermath period must cover the date of the exam or report deadline. All bonus point opportunities are removed for make-up tests.
4. Major deliverables must include a certificate of authorship, which can be found in <http://www.ateneo.edu/ls/sose/iscs/downloads>. It must state all resources and references that you used except for lectures, slides, and syllabus-listed references. Submissions without a certificate will not be accepted and may incur a late penalty once a certificate has been included.

5. Late deliverables are subject to deductions (-10% of maximum score per day late, rounded up). This does not apply to quizzes (late submissions not accepted).

6. Because of the existence of bonus points, exceeding the maximum point total for certain requirements is possible. However, excess points will not allow you to exceed the maximum for the converted percentage grades listed in the Course Requirements section.

- Example#1: If you get 43/40 in all your tests, the grade does not get converted to 64.5% and is capped at 60%.

- Example#2: If you get 43, 41, and 36, you still get 60%.

7. Cumulative numeric grades below 60 are NOT rounded off, even if the grade is 59.9999~~~

8. No extra-credit work will be issued. Ever. Even if you ask nicely. I will ignore any requests for extra-credit work regardless of the circumstances that led to your making the request. This also applies to requests made by a third party on your behalf.

9. In case you need assistance regarding internet access, hardware, etc., you may access the following url: <https://sites.google.com/ateneo.edu/ls-one>

10. More policies may be added should the need to do so arise. However, these will require your consent if they are not issued by the department chair or another university authority.

K. CONSULTATION HOURS

NAME OF FACULTY	EMAIL	DAY/S	TIME
Victor Antonio M. Ortega	vortega@ateneo.edu	Weekdays	1300-1500

L. ADDITIONAL NOTES

If in any case you become unable to participate in the course activities (e.g. synchronous sessions, asynchronous activities) or comply with the requirements due to technical difficulties or other concerns, please let the instructor know so we can make necessary arrangements.

Reference:

Core Curriculum Learning Outcomes (CCLOs)

LEGEND:	
CCLO 1	Demonstrate effective communication skills (listening and speaking, reading and writing) in English and Filipino.
CCLO 2	Evaluate information and issues in various spheres of life using mathematical reasoning and statistical tools to process and manage data.
CCLO 3	Propose ways to address pressing social and ecological problems using appropriate critical approaches and scientific thinking
CCLO 4	Develop a creative and moral imagination that is responsive to contemporary global realities and challenges, but also deeply rooted in local histories, conditions, norms, and institutions.
CCLO 5	Internalize the significance and value of her/ his unique existence and purpose in life in light of Christian faith.
CCLO 6	Discern life choices with a keen awareness of ethical dilemmas and considerations.

CCLO 7	Exemplify a commitment to enhancing human life and dignity, especially those who are excluded and in greatest need.
CCLO 8	Practice a vision of leadership and committed citizenship rooted in Christian humanism.

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