COM 299, Game Development

American University of Central Asia
Department of Software Engineering

1 Course Information

Course ID
COM 299, 3956

Course Repository
`https://github.com/auca/com.299`

Class Discussions
`https://piazza.com/class/j6teu837xx66jh`

Place
AUCA, laboratory G31

Time
Monday 10:50
Friday 10:50

2 Prerequisites

COM 117, Programming II. Object-oriented Design

3 Contact Information

Instructor
Toksaitov Dmitrii Alexandrovich
toksaitov_d@auca.kg

Office
AUCA, room 315

Office Hours
Monday 15:25–17:00
Tuesday 15:25–17:00
Wednesday 10:00–17:00
Thursday 15:25–17:00
Friday 15:25–17:00

4 Course Overview

The course introduces students to the topic of game development. It covers theory and practice of video game production. It delves into the fields of computer graphics, computational physics, artificial intelligence, and game-play design. During the course students will get an opportunity to build a market-ready game for desktop, web, or mobile platforms. Students will learn on how to use the Unity game engine, the leading game authoring tool on the market. Students will also take a look on a popular alternative, Unreal Engine 4. Finally, they will be introduced to the topic of building a simple game engine from scratch on their own.

5 Examinations

Students will get midterm and final examinations in the form of two quizzes with multiple choice questions. Both examinations will be about linear algebra topics for use in game development.

6 Practice Tasks

Students will have to finish several practice tasks. In each task they will have to create simple clones of classic video games from various genres.

7 Course Project

Throughout the course, students will have to create a game on their own or together with another student in a team. It is up to the student or the team to select the type of the game to make.

8 Presentation

Students will have to make one presentation about any market game of their choice. The presentation should be focused on the game's internals, its development or production process, and tools or techniques used to create it.

9 Reading

3D Math Primer for Graphics and Game Development, Second Edition by Fletcher Done and Ian Parberry (ISBN: 978-1-4398-6981-9)

9.1 Supplemental Reading

1. Game Development Essentials: An Introduction 3rd Edition by Jeannie Novak (ISBN: 978-1111307653)

2. Game Coding Complete, Fourth Edition by McShaffry and David Graham (ISBN: 978-1133776574)
3. Game Engine Architecture, Second Edition by Jason Gregory (ISBN: 978-1568814131)
4. Game Programming Patterns by Robert Nystrom (ISBN: 978-0990582908)
5. Mathematics for 3D Game Programming and Computer Graphics, Third Edition by by Eric Lengyel (ISBN: 978-1435458864)

10 Grading

- Class participation (through Piazza) (5%)
- Presentation (10%)
- Midterm (15%)
- Final (20%)
- Practice tasks (20%)
- The course project (30%)

– 90%–100%: A
– 80%–89%: A-
– 70%–79%: B+
– 65%–69%: B
– 60%–64%: B-
– 56%–59%: C+
– 53%–55%: C
– 50%–52%: C-
– 46%–49%: D+
– 43%–45%: D
– 40%–42%: D-
– Less than 39%: F

11 Rules

Students are required to follow the rules of conduct of the Software Engineering Department and American University of Central Asia.

Team work is NOT encouraged. The same blocks of code or similar structural pieces in separate works will be considered as academic dishonesty and all parties will get zero for the task.