GAD2006

Advanced Game Development

Lecturer Galip Kartoğlu

INSTRUCTOR

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Office Hours: Office Hours: 10:00 – 18:00
(Weekdays BAU TEKMER 801)

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COURSE INFORMATION[1]

Terms	:	Fall 2022
Time	:	10:30-14:20 (Tuesday)
Course Credit/ECTs	:	3/5
Classroom	:	GLTSC02
Course Type	:	F2F

COURSE OBJECTIVE AND LEARNING OUTCOMES

The main objective of this course is to provide the students with a deeper understanding of game programming/development concepts using Unreal Engine 4 – an industry-leading professional development tool/editor for creating interactive experiences and/or enterprise fields of real-time training simulation, visualization, and media/entertainment-.

This course contains both theoretical and practical applications on game development. There will be a final project in which students are required to build a game of their own with the points taught during the classes. The fundamental aspects of Unreal Engine 4 which were explained in previous Game Development I/II courses will be further explained and get more detailed with every lecture. Students will be expected to complete assigned projects to demonstrate and develop their skills with blueprints and assisted C++.

By the end of this course, each student should:
1. Have a comprehensive understanding of the game programming concepts such as object-oriented approach, complex data structures, and commonly used algorithms.
2. Get a better understanding at usage of the engine and its components.
3. Get a better competency with the editor.
4. Learn further how the engine works and how it works to help make one's project run efficiently.
5. Learn about the tools and strategies to solve issues and debug errors.

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[1] It is essential that the syllabus announced at the beginning of the term is not changed except when necessary. When a requirement occurs, the curriculum can be changed by the lecturer of the course by notifying this situation in writing or verbally beforehand. It is the student's responsibility to follow the current program.

COURSE STRUCTURE

Course will be held face-to-face. Students who are responsible for the course are expected to follow the course in the classroom (GLTSC02) during the course hours in face-to-face courses.

ONLINE OFFICE HOURS

You can get an appointment to meet me on BAU Galata 8th floor no:801 (Stormling Studios) during working hours (10:00-12:30 / 13:30-18:00, except Tuesdays). To get one, please contact me via a Teams private message. To book a reservation for a MS Teams call or face to face meeting please contact me 24 hours beforehand.

COURSE POLICIES

Communication Channels and Methods

The lecture will be held on GLTSC02. Students who want to contact me outside class hours can reach me via Teams.

Usage of Digital Tools

Usage of Computers: A computer capable of running MS Teams and Unreal Engine 4.27.2 will be sufficient for the course. Additionally, the computer is expected to be used only for learning purposes during the course and not for any other reason. Students are to respect the lecturer and other students in the course by not disturbing and/or ignoring the course material during class hours.

Mobile Technologies: Mobile technologies such as mobile phones, tablet computers, laptop computers can only be used for teaching purposes. Please respect the lecturer and your friends by turning off the volume or turning off your mobile phone.

Cell Phone: Your cell phones should be muted or turned off before class. There may be some important situations in our lives (health, family, personal) in such cases, please turn your phone to vibration and if you really need to talk, leave the class and talk outside and come back to the lesson.

Assignment and Project Deadline

All your homework will be sent via Itslearning course site.

Please do not send your homework to me via e-mail. Assignments sent directly to me via e-mail will not be accepted.

All your homework and projects must be submitted on time. Your assignments and projects are due one day before the lesson.

For each late submission, the grade will be reduced by 10% (per day).

Attendance

School policy allows every student to be absent for a maximum of 4 total lectures. Otherwise, the student will fail the course. (30%)

If you are going to be absent from a course, please inform the instructor that you will not be attending the lesson by e-mail or using another communication method.

You can contact the instructor of the lesson about the lessons you did not attend and ask what was taught in that lesson. It is your responsibility to complete the assignments and tasks not done for that lesson on time and keep up with the content covered.

Disabled Student Support

You can contact me directly regarding the issues that may be an obstacle for you (vision, hearing, etc.). In addition to this, there is a Disabled Student Unit to minimize the difficulties that our disabled students will encounter due to their disabilities and to eliminate the obstacles. You should contact this unit regarding your situation.

Oral and Written Communication Ethics

During the lesson you must express yourself respectfully in your communication with your friends and with me. In addition, you are responsible for maintaining this respect in discussions, homework, and correspondence on the online platform.

Privacy and Copyright

In accordance with the Personal Data Protection Law, the courses will be recorded on the online platform within the scope of your approval and knowledge. In addition, it is strictly forbidden to register the participants (students and instructors) during the course.

COURSE RESOURCES

Unreal Engine Instructor Guide

Real-time Rendering (Tomas Akenine-Mo¨ller, Eric Haines, Naty Hoffman)

Mathematics for 3D Game Programming and Computer Graphics ([Eric Lengyel](#))

GRADING AND EVALUATION

Assignment	Description	Scoring	Weight (%)
*Midterm	You will be given 2 assignments which will have specific deadlines. Their average score will be counted as your midterm score.	100	30
*Labworks	You will be asked to finish tasks related to the course's contents every week.	100	30
*Final Project	You will be asked to build a complete game project with a team of maximum 2 people. (Solo teams are also accepted.) You are required to show weekly process of your project by coming to the classes.	100	40
TOTAL			100

Grading

Letter Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	F
Points	95-100	90-94	85-89	80-84	75-79	70-74	65-69	60-64	55-59	54-50	0-49

Course Calendar

Week/Place	Course Topic	Notes	Practices
W1	Introduction & Scripting Recap		Introduction to project assets
W2	Introduction to Native Programming		Labwork #1
W3	Actor Coding Basics with Assisted C++		Labwork #2
W4	Content Pipelines & Animation Blueprints		Labwork #3
W5	Breakdown of a Game Prototype	Assignment #1 introduced	Labwork #4
W6	Developing AI in UE Part #1		Labwork #5
W7	Developing AI in UE Part #2	Assignment #2 introduced	Labwork #6
W8	Introduction to Physics		Labwork #7
W9	Multiplayer Part #1		Labwork #8
W10	Multiplayer Part #2	SVN setup	Labwork #9
W11	UMG		Final Project Interview #1
W12	Optimization and Debugging		Final Project Interview #2
W13	Packaging and Releasing		Final Project Interview #3
W14	Final Project Evaluation		

Matters Needing Attention

- Make sure you read all weekly course materials.
- Participate positively in classroom activities and discussions.
- Attend the classes actively every week.

Academic Integrity, Cheating and Plagiarism

Hexham (2005) defines plagiarism as a planned deliberate action to deceive the reader by pretending to be someone's word or words. Academic plagiarism is also in the form of an author's use of more than four words in his own research, without using quotation marks from a written source, without a precise reference to the original source published before, or in the form of similar fraudulent behavior in scholarship-application forms he wrote to contribute to his research. defines.

- Actions that can be defined as contrary to publication ethics in the scientific community are defined as follows.
  - plagiarism,
  - cheating,
  - paraphrasing,
  - fabrication and falsification of data,
  - to help copying and plagiarism,
  - To prevent others from accessing a source or data,
  - Appearing as a writer in joint studies without contributing,
  - Use of widely known / anonymous information,
  - No regular attribution,
  - Self-plagiarism etc.
- Not everything on the Internet is public and cannot be obtained without permission or reference.
- Studies conducted without proper reference are graded with a score of zero.
- Large amounts of manuscripts copied without being quoted will be considered plagiarism and you will be responsible.
- Please be aware that the penalties for plagiarism can range from grading homework to dropping you out of class.
- If you copied, plagiarized, or copied / pasted, do not expect the instructor of the course to write you a reference letter or to be your advisor.
- How is plagiarism penalized?
  If it is revealed that you have overcome the course, the instructor of the course will refer to the program coordinator. Depending on the seriousness of the situation, the Program Coordinator decides with the committee the appropriate penalty from giving a grade of 0 from the homework grade to leaving the course. In any case, the student has the right to defend himself.

  ARTICLE 25 – (1) In case it is doubled that a student cheats or attempts to cheat, commits plagiarism or similar violations defined in the applicable disciplinary regulation in any exam, assignment or other assessment activities, a disciplinary proceeding is brought against the student. Such activity is not assessed during the proceedings. A student who is found guilty is assigned zero point in addition to the disciplinary punishment. If the student is found innocent as a result of disciplinary proceeding, the exam taken by the student shall be assessment or a make-up exam or activity is provided.

  You can access Bahçeşehir University and Higher Education Institution Regulations by clicking this sentence.