IT 201
Fall 2023
Course Syllabus

Organizational

Hybrid Class: Synchronous in-class lectures at GITC 3200 computer lab + Asynchronous Online via Canvas.

Lecture Day/Time: **Wednesday 1:00 PM - 2:20 PM.**

BRING YOUR COMPUTER to CLASS!!

This is a 3-credit course, but with only 1.5 lecture time - you need to dedicate 7.6 hours to the course weekly. Mark your calendars to ensure you dedicate the time to work.

Instructor: Margarita Vinnikov, Ph.D. | Email: vinnikov@njit.edu

Office Hours: By appointment only. GITC, 3802, or Virtual. Wednesday from 10:30 a.m. to 11:30 a.m. and 4:00 p.m. to 5:00 p.m.

TAs:

Kantida Nanon | Email: kn32@njit.edu | TBA | Book appointment.

Please email Dr. Vinnikov and Ms. Nanon to reserve your office hours.

Discord: TBA

This course provides a practical overview of interactive design and programming principles through interactive 3D development. Experience is gained in user experience diagramming, feature-centered design, event-driven programming, user interfaces, and multimedia development. Students gain experience developing graphics, animations, interface elements, and interactive experience building using C# programming in the Unity content creation engine. Projects focus on cross-platform delivery of web applications using WebGL.

Course Structure

Each week will be structured as follows:

- **Live Instruction:** 1.5 hours of in-person lectures that offer real-time engagement and discussion.
- **Online Instruction:** 1.5 hours of asynchronous material accessible through Canvas. This flexible online component allows you to delve into the content at your own pace.

In addition to the designated class hours, allocate 2-3 hours to independent project work. This time is vital for applying concepts and honing your practical skills as follows:

- **Labs and Projects:** Outside of class, you'll invest time in completing labs and projects, fostering hands-on learning and skill development. Allocate 2-3 hours to independent project work. This time is vital for applying concepts and honing your practical skills.
- **Weekly Reflection:** Dedicate time to reflecting on your progress, summarizing key takeaways, and connecting new knowledge with existing understanding.
- **Peer Assistance:** Actively engage with your peers, assisting them in their learning journey and participating in collaborative discussions.

This comprehensive approach ensures a balanced integration of different learning modes, fostering a dynamic and supportive educational experience.

Peer Mentoring

Problem-solving/troubleshooting/impediments: Ask other students first, check out the documentation, ask the TA, and ask your instructor. There will be technical and creative help forums on Discord. Feel free to email students for help in the class as well or meet outside of class. Also, note that you can get help at Tutoring - Ying Wu College of Computing (njit.edu).

Grading

Grades will be distributed as follows:

Weekly Labs & Quizzes	30%
Projects	40%
Participation	10%
Final Exam	20%
Bonus Marks	10%

Weekly Labs & Quizzes

There will be 5 Labs and 2 Quizzes based on the material discussed in class.

- Lab 0 has no grade, but failure to show the lab to the TA will result in you not getting a grade on other labs. Late submissions of Lab 0 will also result in a significant reduction in your overall grade.
- Lab 1 (5%) will be graded by your peers and your TA. Not commenting on your peers' work will result in losing participation marks.
- Labs 2, 3, and 4 (5% each) are individually graded work graphically describing your code.
- Quiz 1 (5%) is on basic C# code.
- Quiz 2 (5%) is on more advanced C# code.

Projects

Four projects in total. Projects can be done individually or with one additional person (2 people maximum). The TA should be notified of the group at least **three** weeks before submission.

- Project 1 is worth 10% of the final grade.
- Project 2 is worth 10% of the final grade.
- Project 3 is worth 10% of the final grade.
- Project 4 is worth 10% of the final grade.

Projects 1 - 3 will be graded by your peers and your TA. Not commenting on your peers' work will result in losing participation marks.

Final Exam

The final exam will cover all the material discussed and practiced in class. To earn bonus points, you should participate in a discussion on Canvas. The final exam (20%) will be on all the material discussed in class.

Participation

Weekly reflections. Every Friday, you must submit a concise summary of what you have learned from a lecture and other supplementary material. Specifically, you will be required to answer the following questions:

1. What is the most important thing you learned this week and why?
2. What are the top 3 topics/concepts you will remember this week?
3. How does something you learned this week connect with something you already knew?
4. What questions do you still have about this week's material?

Beyond this, I encourage you to utilize this platform to pose questions and provide answers to your peers' queries. Collaborative learning fosters a deeper understanding of the subject matter.

For Bonus Opportunities:

- Share tutorials or create tutorial videos, benefiting your peers and earning extra credit.
- Contribute blogs or vlogs related to the course content, fostering a community of knowledge-sharing.

This will account for 10% of your final grade.

An additional 10% will be calculated based on your in-class, and online participation will be recorded. Please participate in various discussions that will be posted on Canvas.

Attendance will also be taken into account. Also, participation will account for your peer review of other people's labs and projects.

Bonus Marks

You will be able to earn bonus marks through various additional assignments, writing a blog or a tutorial related to the class projects, or participating in experiments that are run in the MIXR lab. More information will be provided throughout the semester.

Grading Legend

Letter Grade to % Correspondence

Grades	Significance	Approx. Points
A	Superior	90-100
B+	Excellent	86-89
B	Very Good	80-85
C+	Good	76-79
C	Acceptable	70-75
D	Minimum	60-69
F	Inadequate	0-59

Please note that a D is still a passing grade for IT students. It means the student did minimal work in the class but still counts towards graduation as long as the total GPA exceeds 2.0.

Late Grading policy

- *Late submission will have severe consequences – 10% off each day you are late. In other words, if you were late for one day, your grade will be 90% or less; 2 days late, and your mark will be 80% or less.*

- *You will receive 0 for a missed presentation or final exam. If you know you will not be on the day of your presentation or an exam, please inform me at least a week before making alternative arrangements. There will be no make-up exams otherwise.*

Academic Integrity

Academic Integrity is the cornerstone of higher education and is central to the ideals of this course and the university. Cheating is strictly prohibited and devalues the degree that you are working on. As a member of the NJIT community, it is your responsibility to protect your educational investment by knowing and following the academic code of integrity policy that is found at:

http://www5.njit.edu/policies/sites/policies/files/academic-integrity-code.pdf (Links to an external site.) (Links to an external site.).

Please note that my professional obligation and responsibility is to report any academic misconduct to the Dean of Students Office. ***Any student found in violation of the code by cheating, plagiarizing, or misusing any online software will result in disciplinary action. This may include a failing grade of F and/or suspension or dismissal from the university.*** *If you have questions about the code of Academic Integrity, please get in touch with the Dean of Students Office at* ***dos@njit.edu.***

Attendance Policy

This is a hybrid course (live synchronous + online asynchronous using Canvas). You need to attend the live classes to maximize your participation opportunities. Do your best in the online part of the class, get feedback on your projects, and ask questions anytime.

Accommodations

If you need accommodations, please request those through the Office of Accessibility Resources and Services (OARS) at NJIT and inform the instructor at the beginning of the semester or at least one week before any deadline (whichever occurs first).

Illustrative Schedule

Color Coding: Labs, Reflections, Quizzes, Projects

Weekly Breakdown (TENTATIVE. Some topics and quizzes may be covered in different weeks depending on the class dynamics.) Any changes will be announced in class and on Canvas.

Week 1: September 3 – 9

- *W Class: Introduction and Unity Editor Basics. Tasks: Lab 0 - Install Unity & Visual Studio; Meet everyone on Discord. Look for Project Partners.*

- **Due F:** ***1. Week 1 Reflection 2. Schedule a meeting with your TA for week 2.***

Week 2: September 10 – 16

- *W Class: Game objects, Transformation (screen-space, world space), Prefabs, build requirements, Publishing WebGL and Export project on Google Drive.*
- *Tasks: Lab 1 - Make a VR scene and publish it on itch.io - your peers will grade this lab*
- **Due F:** ***1. Lab 0 - must be viewed by your TA before any other lab will be graded. 2. Week 2 Reflection***

Week 3: September 17 – 23

- *W Class: C# basics and script writing: Variables, Classes, Scope, Hierarchies, Spawn objects.*
- *Tasks: Review Material; Complete lab #1*
- **Due F:** ***1. Week 3 Reflection 2. Lab #1***

Week 4: September 24 – October 30

- *W Class: Events, User input, State diagrams, Debugging*
- *Tasks: Lab #2 - state diagrams. Working on your project #1*
- **Due F:** ***Week 4 Reflection***

Week 5: October 1 – 7

- *W Class: Physics: Rigidbody, Colliders. Documentation.*
- *Tasks: Lab #2 - State diagrams; Work on your project #1.*
- **Due F:** ***1. Lab #2; 2. Week 5 Reflection***

Week 6: October 8 – 14

- *W Class: UI and Interfaces.*
- *Tasks: Work on your project #1*
- **Due F:** ***1. Project #1; 2. Week 6 Reflection***

Week 7: October 15 – 21

- *W Class: Algorithms using loop and switch statements; User flow diagram;*
- *Tasks: Work on your project #2*
- **Due F: 1. *Week 7 Reflection; 2. Take home quiz #1***

Week 8: October 22 –38

- *W Class: Layers and tags, Math libraries*
- *Tasks: Work on your project #2*
- **Due: 1. *Week 8 Reflection; 2. Lab #3***

Week 9: October 29 -November 4

- *W Class: Debugging and script optimization, Use of profiler;*
- *Tasks: Work on your project #2*
- **Due F: 1. *Week 9 Reflection; 2. Project #2***

Week 10: November 5 – 11

- *W Class: Usability considerations of user interfaces to make decisions for grouping, organizing, and naming schemes for ease of use for both user and developer, how to use looping structures and logical operators.*
- *Tasks: Work on your project #3*
- **Due F: 1. *Week 10 Reflection; 2. Lab #4***

Week 11: November 12 – 18 [Note: November 13 is the last day to withdraw]

- *W Class: Basics of motion design and creating animation by code and using the animation system. Control transitions of multiple animations on one prefab/game object by building an animator and setting the transitions between animations by code.*
- *Tasks: 1. Work on your project #3*
- **Due: *Week 11 Reflection***

Week 12: November 19 – 25 [Thanksgiving Recess]

- *W Class: NO class - Friday Schedule*
- *Tasks: Work on your project #3*
- **Due F: *Project #3***

Week 13: November 26 – December 2

- *W Class: Create more advanced prefabs with multiple objects and multiple animations. Students will understand setting up an animator to accept multiple animations, transitions between animations, and how to switch between different animation states. Students will learn how to connect UI elements to animators to allow users to change animation states.*
- *Tasks: Work on your project #4*

- **Due:** ***1. Week 13 Reflection 2. Take home quiz #2***

Week 14: December 3 – 9

- *W Class: Use the animator and animation windows effectively to create animations, break down complex parts of code or animation into simpler parts for creation and modification ease, and understand how to use each loop to process lists of unknown size.*
- *Tasks: Work on your project #4*
- **Due:** ***Week 14 Reflection***

Week 15: December 10 – 16

- *W Class: Review and Preparation for Final*
- *Tasks: Work on your project #4*
- **Due Wednesday:** ***Project #4***

FINAL EXAM