`IT-201 Information Design Techniques Spring 2025

Hybrid Class: In person at GITC 3200 computer lab and asynchronous online.

Lecture Day/Time: Wednesdays from 10am to 11:20am. Bring your own laptop, headphones, microphone, webcam notebook, etc.

Instructor: Tomer Weiss, PhD | **Email**: tomer.weiss@njit.edu |

Virtual Office Hours: Before/after class or by appointment.

TA: Bilas Talkudar | **Email**: bt26@njit.edu |

TA Hours: TBA or by appointment.

OVERVIEW

This course provides a practical overview of the interactive design and programming principles through the lens of interactive 3D development. Experience is gained in user experience diagramming, feature-centered design, event-driven programming, user interfaces, and multimedia development. Students gain experience with the development of 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

BRING YOUR OWN COMPUTER, MOUSE, HEADPHONE, MICROPHONE, and WEBCAM to CLASS!!

Course is broken up into four sections, focusing on refining your skills in interactive design, graphics, animations with programming and interaction design being present in all sections. Each section has 3-4 weeks of instruction lead project development with the last section giving freedom for the students to polish their project. Each week has three hours of class time, with *approximately* 1.5 hours of live instruction (on-campus attendance), 1.5 hours of online instruction (asynchronous materials through canvas), and 2-3 hours of project work (on your own). Both instructions are accompanied by exercises to practice the new knowledge. The only graded items in the class are participation (in during live class and/or online), the projects due at the end of each of the four sprints, and multiple quizzes throughout the semester.

PEER MENTORING

Problem solving/troubleshooting/impediments: ask other students first, check out documentation and then ask the TA first, then ask the instructor. There will be technical

and creative help forums on canvas, and students get credit by helping other students in those forums. Feel free to email students for help in the class as well or meet outside of class.

ACADEMIC INTEGRITY

The NJIT Honor Code will always be upheld . The work you do and submit is expected to be the result of your effort only. CREDIT ALL WORK YOU USED FROM ANOTHER SOURCE.

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

ATTENDANCE POLICY

This is a hybrid course: in-person + online asynchronous using (resources to be announced in 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.

For the Quizzes, you have to be in-person in class to take the quiz. During the Quiz, you will be asked to record your screen using OBS (Links to an external site.)or similar software. You are responsible for checking your device (software and hardware) before a quiz as you have the option to attend in person.

PARTICIPATION POLICY

Your active participation in the live remote class and online is expected. Participation can take the form of asking questions, providing answers, sharing helpful tips, volunteering for demonstrations, and anything that can help your peers understand the material.

CLASSROOM CONDUCT POLICY

Constructive involvement includes regular posting in all forums, constructive discussion,

helping other students, and volunteering for demonstrations. Non-constructive involvement specifically includes non-participation in the forums, negative comments, and not offering a way to improve another student's project if you point out a criticism. Be respectful and a good class citizen, but make sure to give to student some useful advice.

Class Recordings: Class sessions may be recorded by the instructor. These recordings shall only be used as an educational resource and are not to be distributed or used outside of this class. Information on how to access recorded lectures will be made available by your instructor. Any recordings that contain identifiable information about students will not be used beyond this semester.

Class Recording Etiquette: Students are expected to respect their fellow students' privacy and freedom to learn without disruption. Students are not allowed to capture or reproduce anyone's name, image, or voice without permission. They must be polite and respectful in the online chat. Informal chat is okay, but typing is restricted to things that one would say out loud in front of the entire class. Students must always conduct themselves on their webcam video as they would in person in a classroom.

ACCOMODATIONS

If you need an accommodation 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 (which ever occurs first).

If you feel sick, please do NOT attend the in person class and join the online class instead or watch the video recording as soon as you can. If you need a medical or emergency excuse, please contact the dean of student with your documentation.

GRADING POLICY

Final grade is calculated from the four sprint projects and the one test. Each percentage point on your final grade is worth 5 canvas points. Grading percentage may change at the discretion of the instruction.

Quizzes worth 20% of final grade (100 canvas points)

Project 1 is worth 20% of final grade (100 canvas points)

Project 2 is worth 20% of final grade (100 canvas points)

Project 3 is worth 20% of final grade (100 canvas points)

Project 4 is worth 10% of final grade (50 canvas points)

Participation is worth 10% of final grade (50 canvas points)

EXTRA CREDIT
The overflow points from your participation counts as extra credit. You can collect those by participating in class whether you ask questions or answer questions, by participating in Canvas (ask a question, share a resource, help another student)

Late Policy: 25% penalty for each week late on projects, after 3 weeks late you will receive a Zero.

A 90-100 | B+ 86-89 | B 80-85 | C+ 76-79 | C 70-75 | D 60-69 | F < 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 is over 2.0.

Weekly Breakdown (TENTATIVE. Class topics, **project deadlines**, and **quizzes may be modified or rescheduled** depending on the class dynamics.)

[User Input]

Week 1 (22 Jan 2025) : Introduction, basics of interaction design, flowcharts,

Week 2 (29 Jan 2025) : Unity interface, and scripting. User input, camera, ray casting, screen-space, world space, hierarchies, game objects, and build requirements.

Week 3 (05 Feb 2025): [Quiz] Spawn objects, prefabs, scripting, user interfaces, interface elements, promoting interfaces from inspector to UIs.

[3D Graphics]

Week 4 (12 Feb 2025): Classes, Variables, and Scope. UI elements (Sliders, drop down menus...etc) .

Week 5 (19 Feb 2025): Show/Hide Object. Code refactoring. Destroy Objects .

Project 1 Due (19 Feb 2025 by 11:55 pm) [20% of final grade]

Week 6 (05 Mar 2025): Random number generation, position, scale, rotation, color theory, setting attributes. Time and Special functions.

Week 7 (12 Mar 2025): [Quiz] Layers. Opacity and Emissions. Camera controls. Use the math library, look up scripting documentation, building algorithms and use of loops and switch statements.

Week 8 (19 Mar 2025): create higher quality user flows, diagrams, object representations, UI functionality and organization.

Project 2 Due (19 Mar 2025 by 11:55 pm) [20% of final grade]

[Spring break 16-Mar to 22-Mar]

Week 9 (26 Mar 2022): distinguish what objects the user is clicking on, add more complexity to their prefabs and open up more options to the user through the UI.

Week 10 (02 Apr 2025): [Quiz] 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.*

[7 Apr *is the Last Day to Withdraw]*

[3D Animation]

Week 11 (9 Apr 2025): Basics of motion design and how to create animation by code and by using the animation system. Students will be able to control transitions of multiple animations on one prefab/game object by building an animator and setting the transitions between animations by code.

Week 12 (16 Apr 2025): Create more advanced prefabs with multiple objects, and with 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.

Project 3 Due (16 Apr 2025 11:55 pm) [20% of final grade]. Can be submitted late for 1 week only with 25% penalty. No submissions accepted afterwards

[Fine Tune]

Week 13 (23 Apr 2025): [Quiz] Make effective use of the animator and animation windows to create animations, understand how to break down complex parts of code or animation into simpler parts for creation and modification ease, and understand how to use for Each loops to process lists of unknown size.

Week 14 (30 Apr 2025): Project presentation and in class feedback to help with polishing your projects. Example of topics covered are how to organize and present complicated UI interfaces, and refactor prefabs and code to fix bugs. Understand testing procedures to identify issues in code, and external assets, using collection data structures to record initial parameters of objects. Understand naming, commenting, organization and refactoring processes for clean, legible code, and be able to read through and understand all code generated in this class project.

[Wednesday 7 May: Friday classes meet. Last day of classes]

Project 4 Due (7 May 2025 11:55 pm) [10% of final grade]. No submissions accepted after the deadline.

Week 15 Final Exam Week (no final exam for this class).