

# GAME ENGINEERING (MINOR)

## Program Description

### Introduction

The global video game market is valued at hundreds of billions of dollars, and is experiencing unprecedented growth. Game designers and programmers are in higher demand than ever. As the industry grows and develops, so does our commitment to giving students full access to the technology and leading information necessary for them to dive headfirst into this exciting area. Imagine working with cutting-edge technology to create one of the world's newest and most popular forms of entertainment. The Game Engineering Minor provides that opportunity.

### Research at the Game Innovation Lab

The NYU Tandon School of Engineering's Game Innovation Lab provides a dynamic and engaging environment for faculty and the students they mentor to conduct innovative research on artificial intelligence for games. Working with industry partners and research facilities internationally, the lab provides opportunities for graduate students (and a handful of advanced undergraduates) who aspire to challenge convention and break barriers within the industry. Topics studied include procedural content generation for games, open-ended learning in virtual environments, co-creative systems where humans and AI algorithms collaborate in video games, bots that play like humans, and prediction of human experiences and playstyles from data. A good way of getting involved with research in the lab is to take the CS-GY 6943 Artificial Intelligence for Games class.

### Prerequisites

Students are required to complete a minimal core curriculum in Computer Science (CS) before enrolling in the minor (or demonstrate equivalent mastery), in order to be well prepared for the game engineering coursework, as well as a Calculus course. Students completing the minor from outside of the NYU Tandon School of Engineering CS major program can request permission to apply a portion of these prerequisite credits to the overall credit total for the minor. At most six credits of the following courses may be applied to the minor (substituting for the University-wide elective and one of the core electives), provided they or an equivalent course **are not required** as part of the student's major.

Course	Title	Credits
CS-UY 1114	Intro To Programming & Problem Solving	4
CS-UY 1134	Data Structures and Algorithms	4
CS-UY 1113	Problem Solving and Programming I	3
CS-UY 1123	Problem Solving and Programming II	3
CS-UY 2124	Object Oriented Programming	4

## Applying for the Minor

Apply for a minor in Albert using the link in the My Academics section of the Student Center.

Students should apply for the minor before applying for graduation. After applying for the minor, the application is then forwarded to the Home School Advising Office, Host School Advising Office, Host School Department/Program, and the Academic Dean's office.

The departmental advisers governing the minor will have access to approve or disapprove the minor online using the Graduation Tracking Search page. If a student is registered for a course for the minor during

their last semester, the adviser can still set the status to departmental approved pending current courses.

## Program Requirements

The Game Engineering Minor emphasizes mastery of computer programming skills relevant to Game Engineering, combined with hands-on practice building games with other in studio-style courses, and electives drawn from NYU's broad offerings in the games domain. Students are also expected to complete a prerequisite core curriculum in Computer Science (CS) to be well prepared for the other courses (or to demonstrate equivalent mastery).

Course	Title	Credits
<b>Core Course</b>		
CS-UY 3113	Intro to Game Programming (all students are required to take this course)	3
<b>Studio Requirement</b>		
Select one of the following:		3
CS-UY 3233	Game Development Studio I	
CS-UY 4553	Game Design	
<b>Core Electives</b>		
Select two additional game engineering courses within the NYU Tandon School of Engineering CS curriculum (or equivalent courses from other NYU departments - approval required)		6
CS-UY 4533	Interactive Computer Graphics	
CS-UY 4543	Human Computer Interaction	
CS-UY 4553	Game Design	
CS-UY 4613	Artificial Intelligence	
<b>University-Wide Electives</b>		
Select one additional Core Elective or submit another Game Engineering-related elective for approval by the Director of the Game Engineering Minor <sup>1</sup>		3
<b>Total Credits</b>		15

<sup>1</sup> The Director of the Game Engineering Minor will maintain a list of currently approved electives. Here is a *sample* of relevant NYU-wide electives:

- 3D Graphics Studio I in NYU Engineering's Digital Media program *Credits*
- Introduction to Game Design, Game Development Project Studio, and Games 101 in the Tisch School of the Arts Game Center *Credits*
- Designing Simulations and Games for Learning in the Steinhardt Digital Media and Design for Learning program *3 Credits*
- Social Multiplayer Games and Computer Games in the Courant Institute Computer Science Department *3 Credits*
- CS-GY 6943 Artificial Intelligence for Games

## Policies

### NYU Policies

University-wide policies can be found on the New York University Policy pages (<https://bulletins.nyu.edu/nyu/policies/>).

## **Tandon Policies**

Additional academic policies can be found on the Tandon academic policy page (<https://bulletins.nyu.edu/undergraduate/engineering/academic-policies/>).