Software **E**ngineering and **G**aming **A**cademy



MILLIKAN SEGA HIGH SCHOOL

Who Are We?

- **Interest in Computer Science and Hybrid Careers** including:
  - Computer Science and Engineering
    Cybersecurity and Simulations
  - Game Design and Development
  - Application Building and Web Services
    Animation, Music and Marketing for Games
  - Electrical Technology
- **Creative** (Artistically,Problem Solving, or Coding)
- **Collaborative**
- **Involved with extracurriculars**, including sports and esports, arts, music, band or theater.

We don't play Video Games in class, unless we develop them ourselves.



College Level Courses

The State of California requires that students be college and career ready by the end of high school. SEGA offers a 3-Course CTE Pathway, AND the opportunity to take 2 or more AP Classes and/or 2 or more Dual Enrollment Classes. Here are a few that work with our focus, but you are able to take any)

Complementary AP Classes
AP Computer Science Principles
AP Physics
AP Psychology
Any AP Math, Art, Language courses all will help in careers of this type

Complementary Dual Enrollment Classes (LBCC) [free] Towards LBCC's Multimedia and Game Design Certificate of Achievement:

See your Counselor
About any CORE Classes or Vocational Classes you would like to take or retake at LBCC.

DMA 1
Intro to Computer Graphics
(CSU)

DMA 20
Digital Animation 2D
(UC and CSU)

DMA 2
Intro to Digital Media Arts
(UC and CSU)

DMA 30
Digital Animation 3D
(UC and CSU)

CS 21
Intro to CS - Java
(UC and CSU)

CS 31
Intro to CS - Python
(UC and CSU)

Freshman Year (9th Grade)

Level 1: Game Design

[2D Game Development]

Studying a game you already know to learn the components of the Engineering Design Process through the lens of a video game designer. Using that knowledge, write their own Game Design Document for a game that they create, animate the characters and background and then program in 2D.



Programming:
Program games using Construct3, a 2D Gaming Platform.

Animation:
- Wick Editor
- Construct Animate

Integrated Projects:
CTE: Character outline
ELA: Character Lore (Personal Narrative)

Freshman Year (9th Grade)
Level 1: Game Design

Career Awareness Day:

- Software Engineers from Microsoft, BCS
- Utilities (Water District), Space Force
- Gaming Industry, Architects







Field Trips:

Herberger Institute for Design and the Arts
ASU The GAME School
Arizona State University



Sophomore Year (10th Grade)





Introducing:
World History or AP World History

No CTE Classes this year due to extra required classes.

Field Trips:

CSULB COLLEGE OF ENGINEERING

CORPORATION COMMUNITY HACEMOS EMPLOYEES

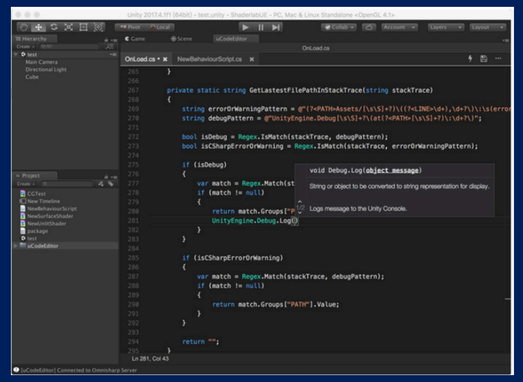
Junior Year (11th Grade)

Level 2: Game Development

Goal: To learn 3D programming, modeling in Unity (C#).

- Creation of 5 prototypes using Unity Learn Curriculum.
- Troubleshooting Journal
- ELA will create a Cover Letter; and CTE will create a resume to participate in a Mock Interview with Industry Professionals.
- Study AI Ethics and how it relates to Game Development





Unity

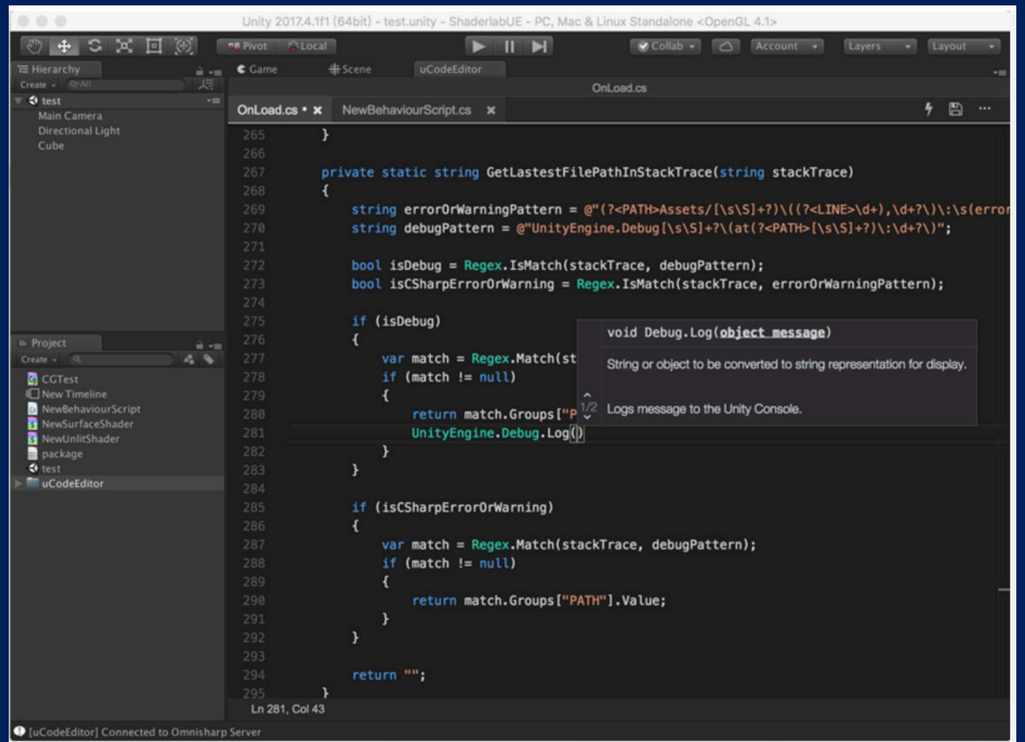
blender

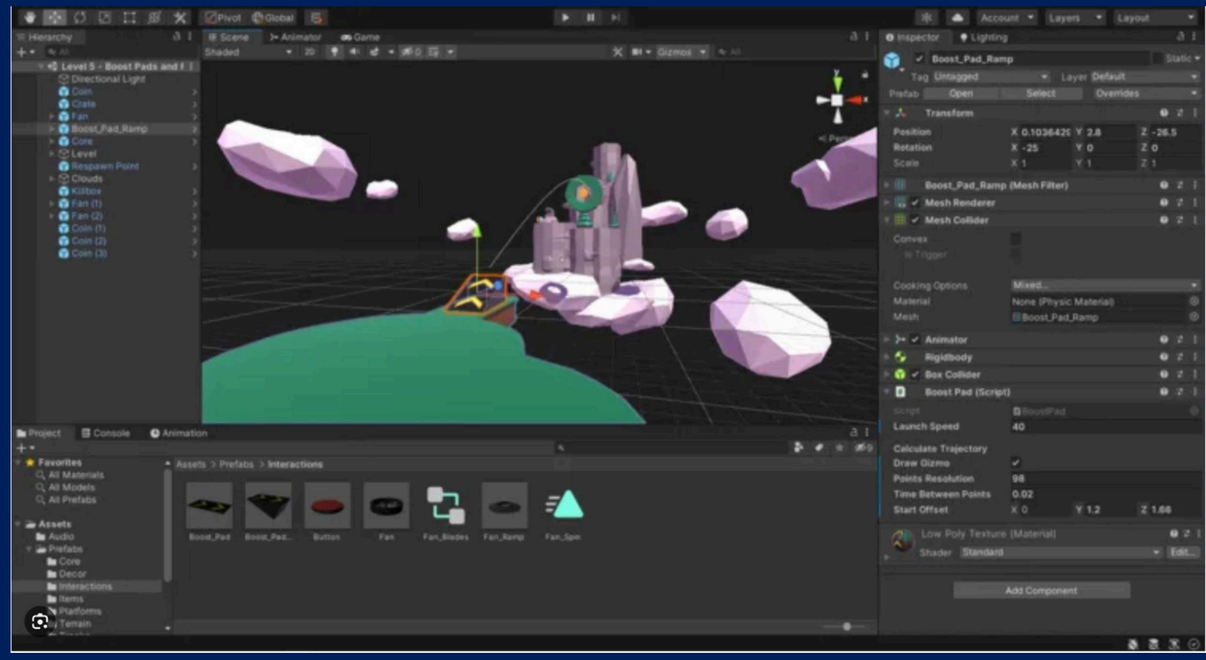
Preparation provided for those who want to take the Certification Test.











Junior Year (11th Grade)
Level 2: Game Development





Field Trips to:

Gnomon School, POLB Women in Trade, Grand Prix of Long Beach (Behind the scenes)

Work-Based Learning Experiences:

- Mock Interviews with Professionals
- Resume Workshops by HR Professionals
- Internship Application Assistance

Junior Year (11th Grade)

Level 2: Game Development

More Field Trips:

VR Field Trip and speaker - a VR Developer









Come back for Open House - to see our SEGA Senior Capstone Showcase!

Senior Year (12th Grade)
Level 3: Game Capstone

Goal: To Demonstrate Mastery and learn Agile Project Management Skills.

Group Capstone Project

Groups Create a Game, Animation, or Application to Help a Non-profit organization to further their message. (Qualifies for State Seal of Civic Engagement). All Students learn Agile project management skills.

Individual Capstone Project

-Student Choice
-Game, Application, Animation, or Physical Project
-Game Showcase
-Industry Feedback

Final Reflection

-Reflection of both projects
-Justification of Reaching Pathway Outcomes and LBUSD Graduate Profile
-Finalize ePortfolio
- California Seal of Civic Engagement (62 in 2026)

Professional Interaction

-For Feedback on Projects
-Mentoring
- Internships
-Interviews

12th Grade Experience



Studio-MLA or Apple TV Workplace Tour

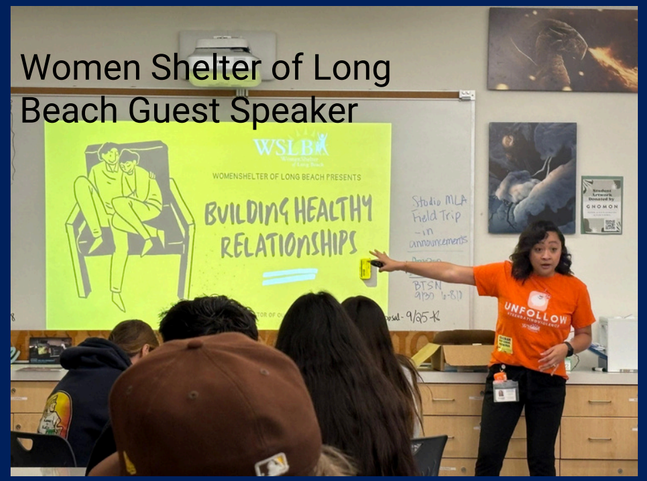


Universal Studios - Behind the Scenes



USC SchoolofCinematic Arts - Playtested Graduate School-Created Games

USC School of Cinematic Arts



Women Shelter of Long Beach Guest Speaker





2024 District Esports Champions
2025 District Finalists (Rocket League)
2025 3rd Round CIF (Smash Bros)



Click this link or Scan QR Code to see our Capstone Projects from Previous Years.





Our games were the 2023, 2024 and 2025 Winners!!!
Emerging Technology Category

Our Administrator and Counselors

Administrator - Matt Brown
mdbrown@lbschools.net

Counselor (9th Grade) -
Sonja Jimenez
sjimenez@lbschools.net

Counselor (10-12th Grades) -
Terence Booth
tbooth@lbschools.net





9th and 11th grade
CTE Teachers
Ms. Desantis and Ms. Baldwin

@sega_millikan
Follow for updates

For More Information

Pathway Coordinator -
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