

Curriculum & Student Development Committee

Tuesday, March 10, 2026 5:00 PM

Neck River Elementary School, 180 Mungertown Road, Madison, CT 06443

I. K-12 STEAM Programming

II. Public Comment

III. The Town of Madison does not discriminate on the basis of disability, and the meeting facilities are ADA accessible. Individuals who need assistance are invited to make their needs known by contacting the Town ADA/Human Resources Director, Debra Ferrante, at 203-245-6310 or by email at ferranted@madisonct.org at least five (5) business days prior to the meeting.



Curriculum & Student Development Committee Meeting

March 10, 2026
Neck River Elementary School



Grades K-5 STEAM



This is How We
Learn & Grow in
STEAM



STEAM at Neck River and Brown



“The first thing she wanted to do when she got home was build a zipline.”

~Kindergarten Parent



“STEAM is always the “rose” when we talk about our day.”

~5th, 3rd, 1st Parent

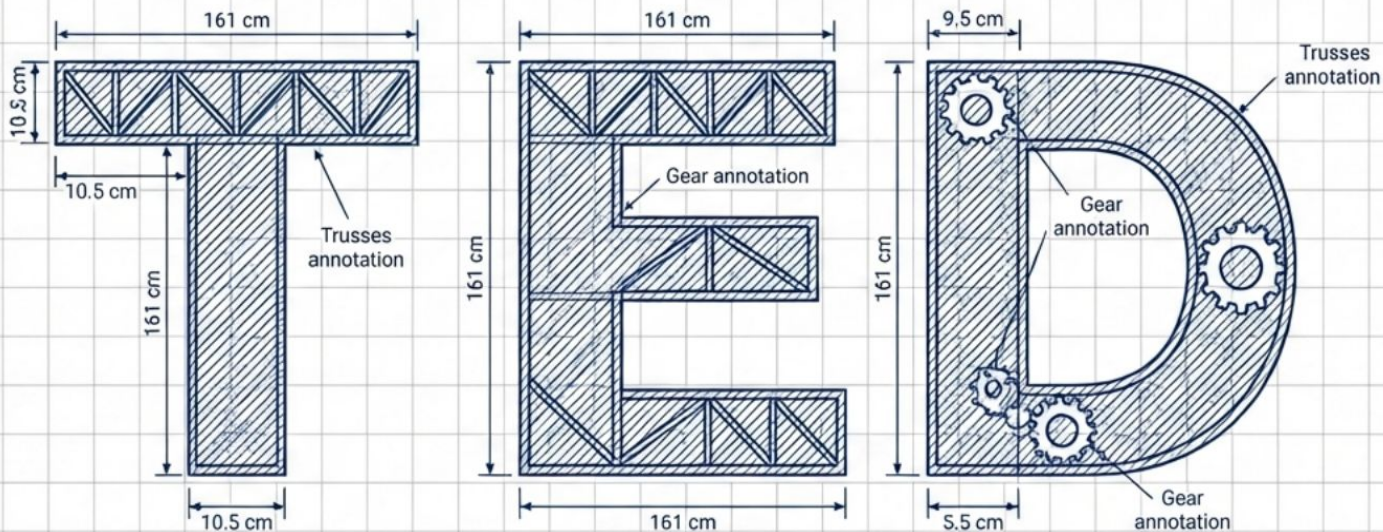
Technology, Engineering & Design

The logo consists of the letters 'W', 'P', 'M', and 'S' arranged in a 2x2 grid. The top row contains 'W' and 'P', and the bottom row contains 'M' and 'S'. The 'W' and 'S' are yellow with a black outline, while the 'P' and 'M' are black with a yellow outline.

WP
MS

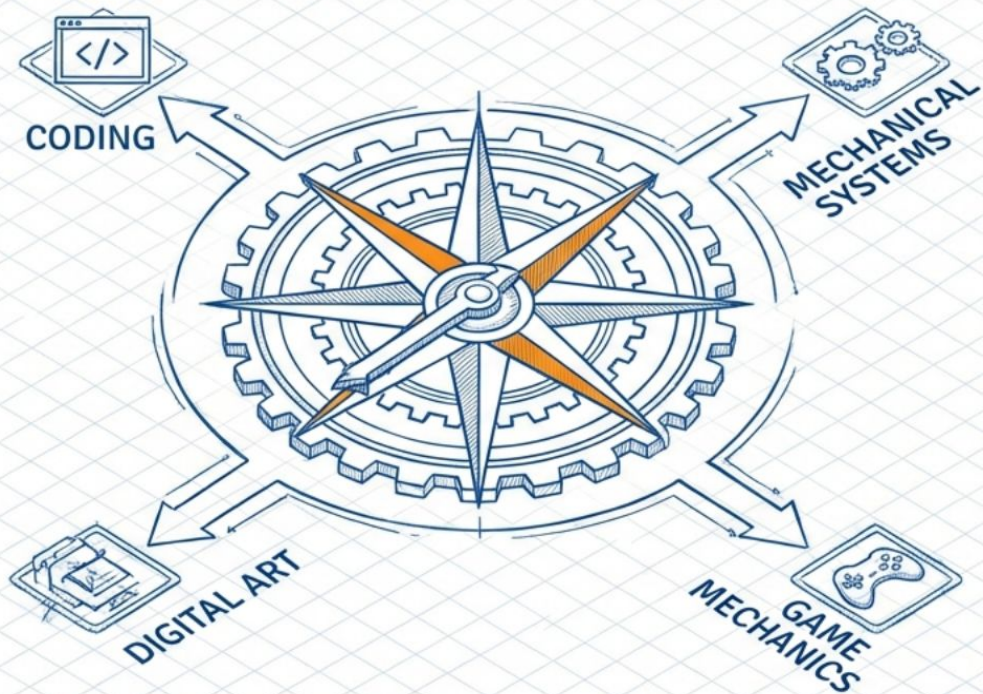
Technology, Engineering, & Design

Choice. Challenge. Creation.



Polson Middle School Elective Course Overview

STUDENT AGENCY: THE CORE OF TED

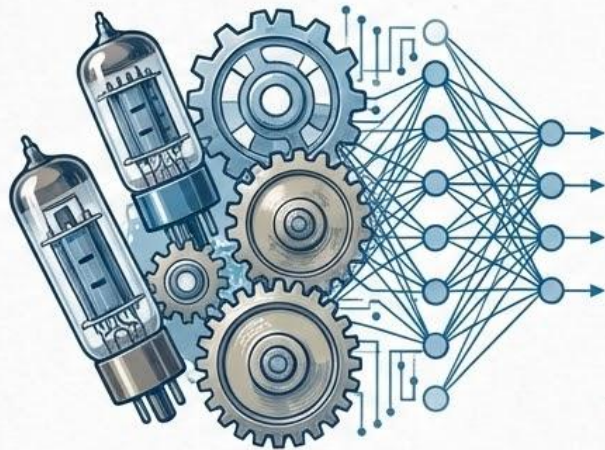


TED is an elective course at Polson Middle School grounded in student agency. From the outset, students have meaningful ownership—not only in what they create, but in how they approach learning.

Whether a student gravitates toward coding, mechanical systems, digital art, or game mechanics, TED provides space for personal direction while maintaining high expectations for technical skill, critical thinking, and iterative improvement.

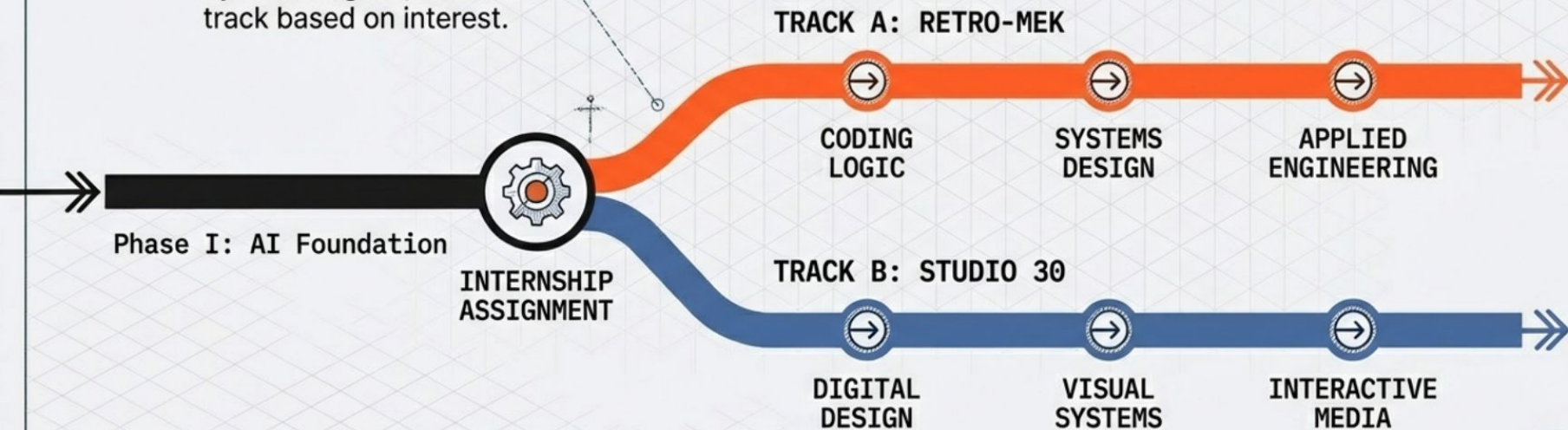
Part One

Analog AI



THE DIVISION SPLIT: SPECIALIZATION & SKILLS

Students exercise agency by selecting a specialized track based on interest.



Part Two

Building Retro Games Through Code and Visual Design



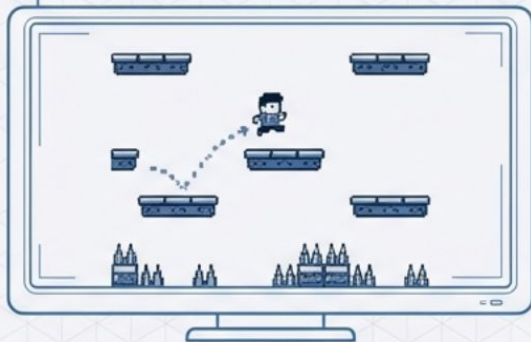
```
1 #stepots  
2 eeen {  
3     ifv s-0 {  
4         printf("nanor");  
5     } else  
6         csaesItraax();  
7     }  
8 return 0;  
9 }
```

RETRO-MEK: THE LOGIC OF GAME DESIGN

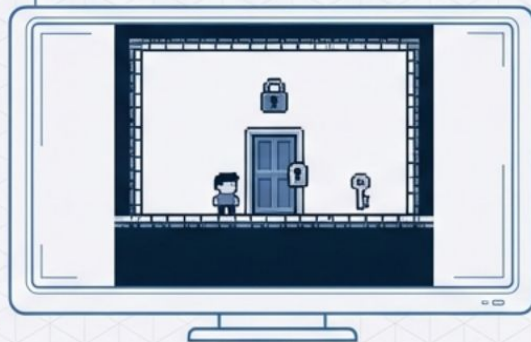
→ Space Shooter // Cartesian Coordinates



→ Platformer // Gravity Physics



→ Puzzle Portal // Boolean Logic

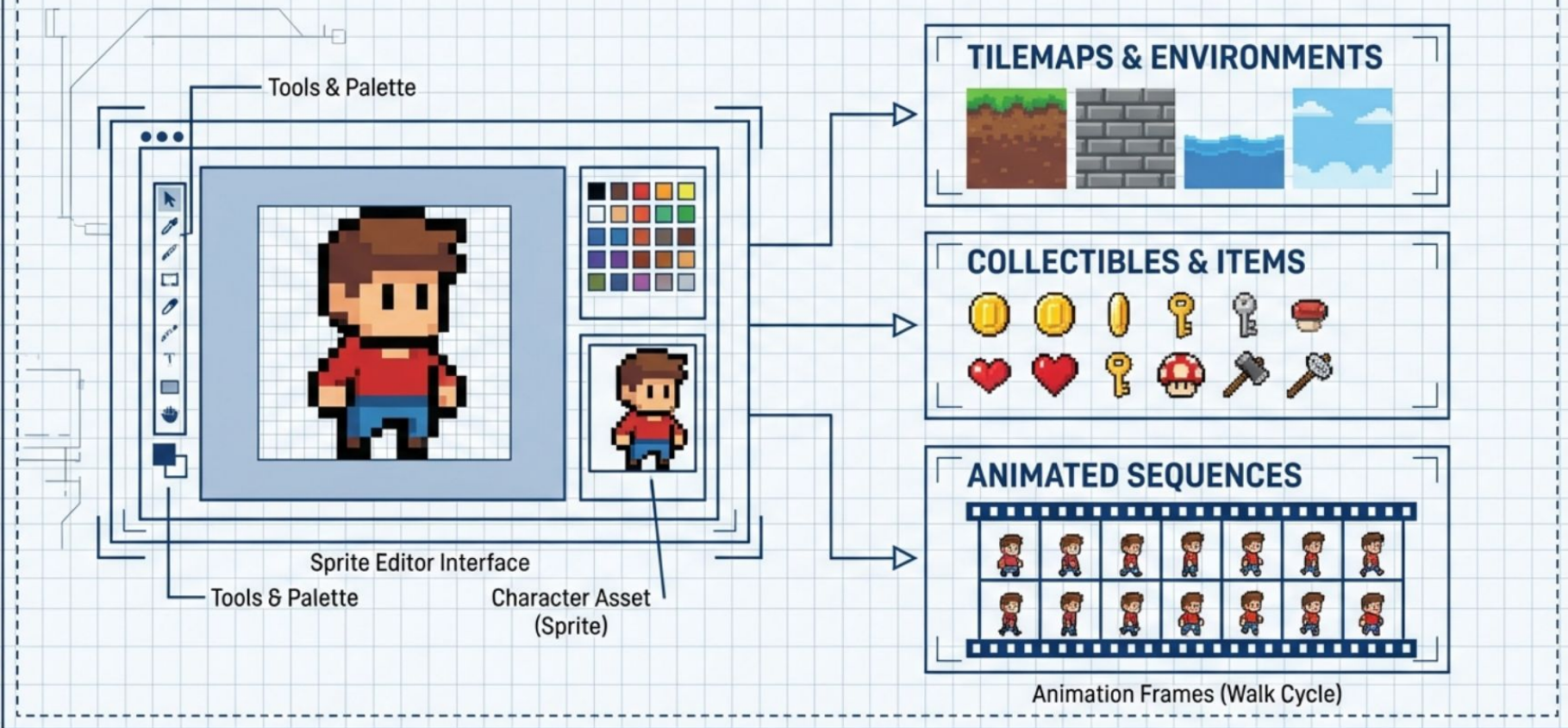


ACADEMIC CONCEPTS:

- **Sequencing & Logic:** Event-based coding and conditionals.
- **Physics Modeling:** Collision detection and movement simulation.
- **Systems Thinking:** Enemy behavior and game balance.

Tool: Microsoft
MakeCode Arcade

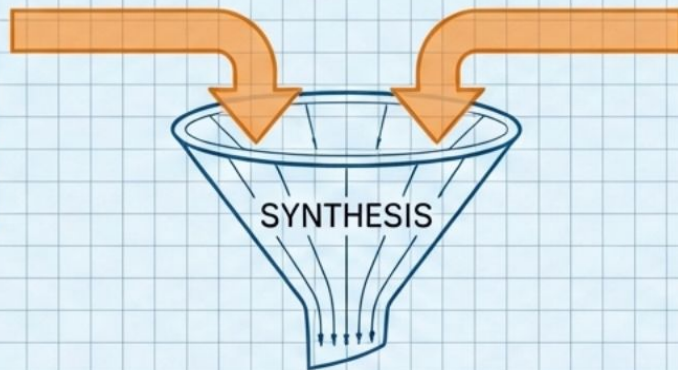
STUDIO 30: PIXEL ART CREATION & ANIMATION



CROSS-FUNCTIONAL COLLABORATION

RETRO-MEK

- Physics
- Logic Systems
- Gameplay Code



STUDIO 30


- Sprite Animation
- Backgrounds

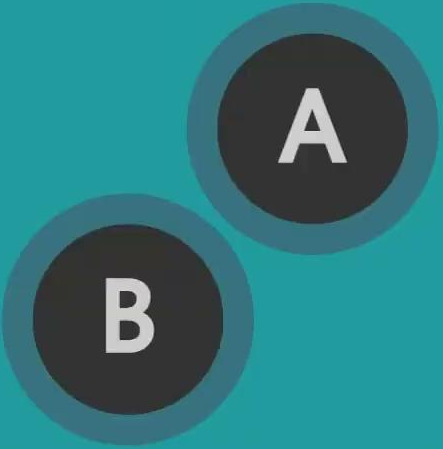
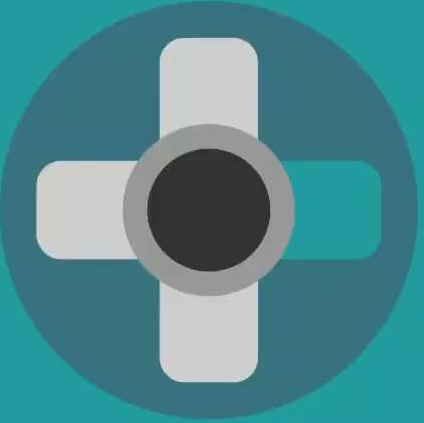


GO-TO-MARKET ASSETS



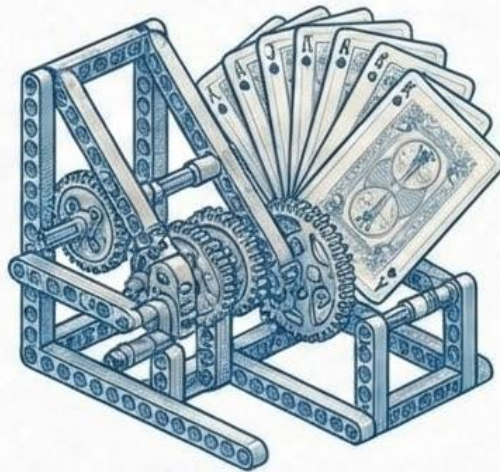


Menu 



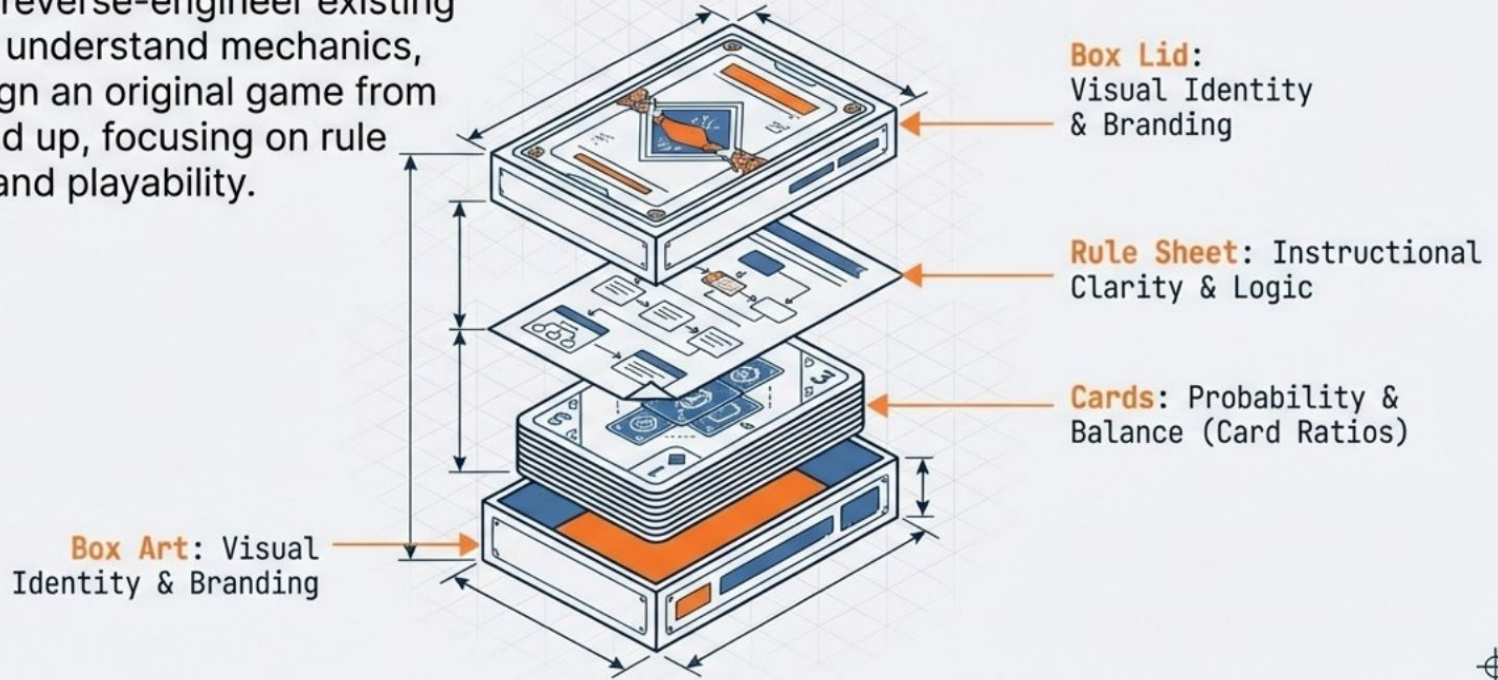
Part Three

Applying Engineering and
Design to Real-World Creations



STUDIO 30: ANALOG SYSTEMS ARCHITECTURE

Unit: Independent Card Game Development.
Students reverse-engineer existing games to understand mechanics, then design an original game from the ground up, focusing on rule systems and playability.

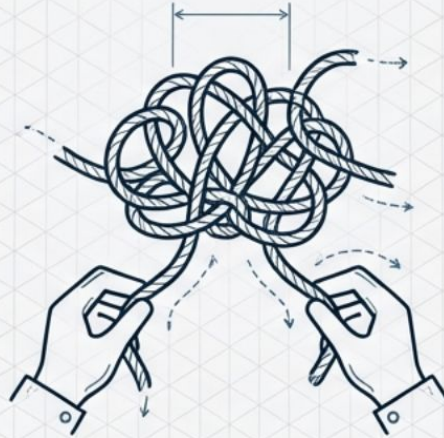


MINDSET & INTANGIBLE OUTCOMES



CREATIVE CONFIDENCE

The ability to move from abstract ideas to tangible, functioning products.



PERSISTENCE

Engaging in "productive struggle" to overcome code errors and structural failures.



ETHICAL TECHNOLOGY USE

Distinguishing between AI as a tool vs. a shortcut. The discipline to choose the hard work.

Fab Lab



HANDMADE

Daniel Hand High School Makerspace

Learning



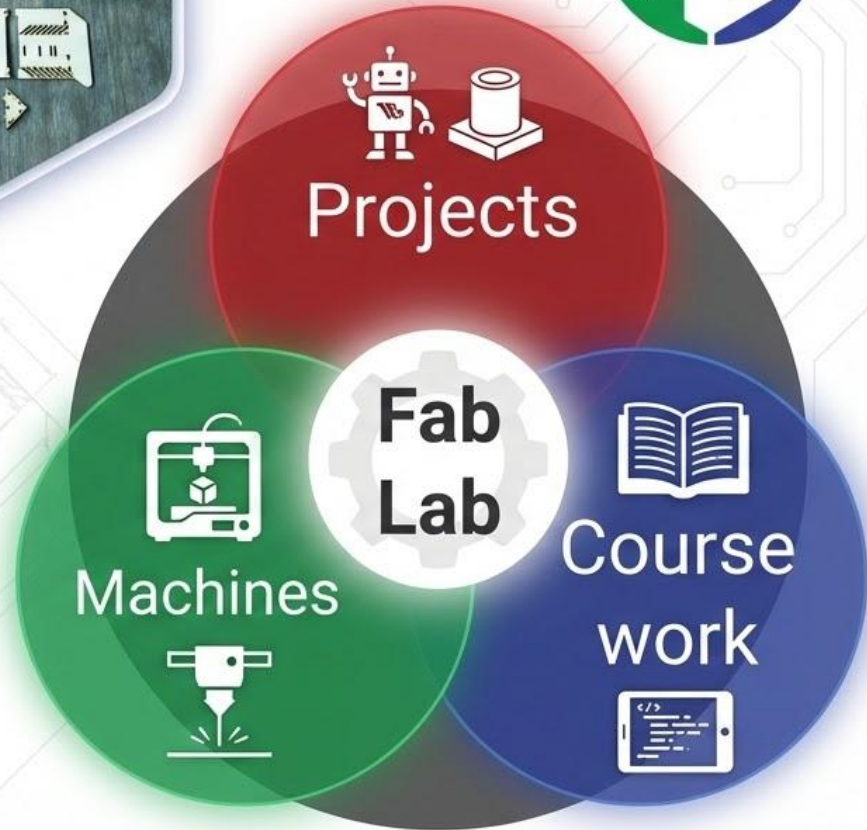
Fab Lab



Supporting Independent Projects and Innovation

Vision:

To provide students individual access to digital design and fabrication technologies



FAB LAB + HAND STUDENTS = INNOVATION & CREATIVITY



Fab Labs are a place where disciplines intersect



An opportunity for independent exploration



Opportunity to 'make' creatively



Fab Labs provide tools to get started with big ideas



A place for undirected learning

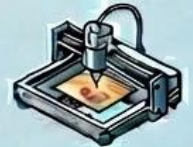
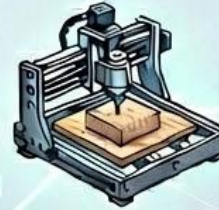


Students & staff can level up their technology skill

FAB LAB STATIONS

- Music & Podcasting
- Textile machines
- Electronics Center
- 3D Printers

- Baby CNC milling
- Vinyl Cutter/Printer
- Laser Cutter
- Design Software



The Shot Bot: Complex Circuitry & Coding



Stepper motors attached to wheels launch a ball into a hoop



Distance sensors determine the variable speed of the motors



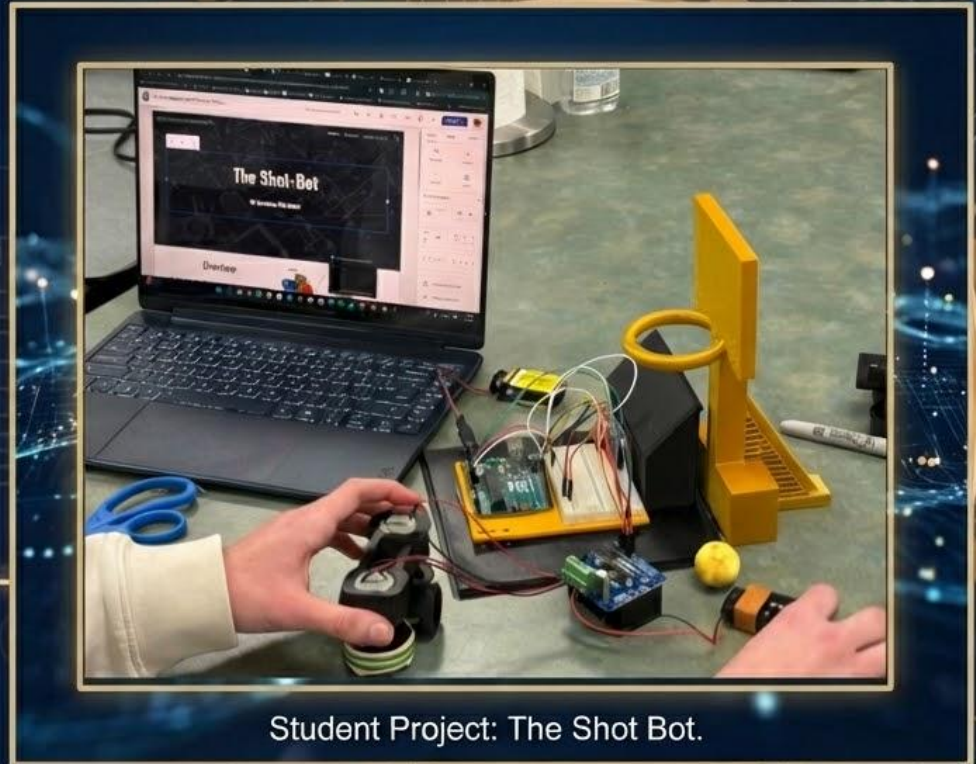
Motors and sensors are wired to a breadboard and an Arduino microcontroller



Arduino microcontroller is coded to connect everything together

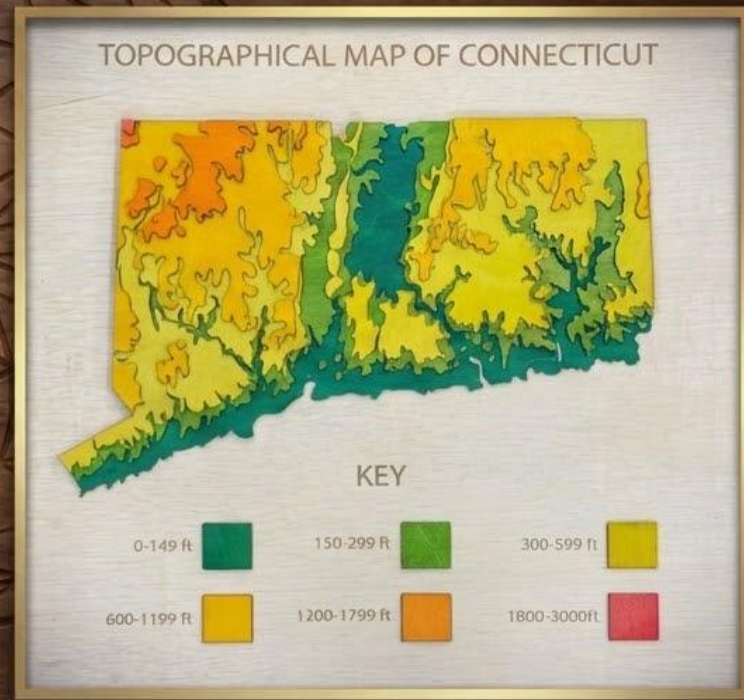
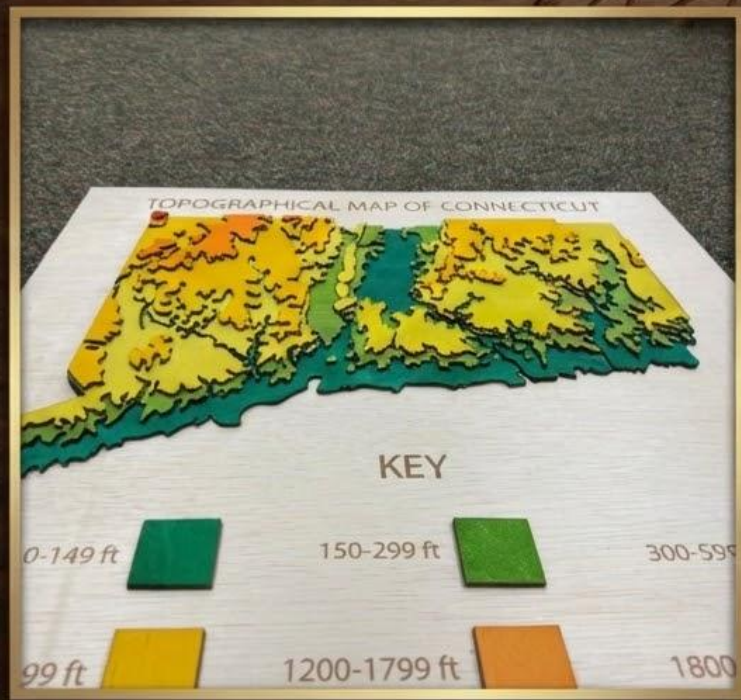


The hoop, ball and launcher housing are 3D printed



Student Project: The Shot Bot.

A laser cut and engraved topographic map...



Locker Room Redesign



Digital design with
Chief Architect



Laser engraver to cut
and engrave the walls
and floors



CNC machine to make
the locker banks



3D printer to begin
furnishing the space



3D Printing a Remote Controlled Plane



3D printed components:
Fuselage, wings,
and tail parts.



Fully assembled plane
with electronics and
golden finish.



FlySky transmitter
for remote control
and flight.

Lots of textile projects, too...





CAREER & TECHNICAL EDUCATION

Our program is designed around several career pathways to cultivate the potential in our students by integrating rigorous classroom instruction with relevant, work-based experiences that inspire, guide and empower them for post-secondary college and careers.





CAREER PATHWAYS: AN EXPLORATION JOURNEY

Our **Career Pathways** are an exploration journey designed to engage students in a potential career path. Courses are structured to **spark interest**, **highlight possibilities**, and allow students to experience work as **novice** practitioners. Our curriculum is **challenging**, **engaging**, **effective**, and **relevant**, providing the foundational technical knowledge, skills, and academics needed for **real-world success**.





WE CURRENTLY HAVE 8 OF THE 16 FEDERAL CAREER PATHWAYS:



Business Management



Design/Pre-Construction



Education & Training



Engineering, Design & Development



Journalism & Broadcasting



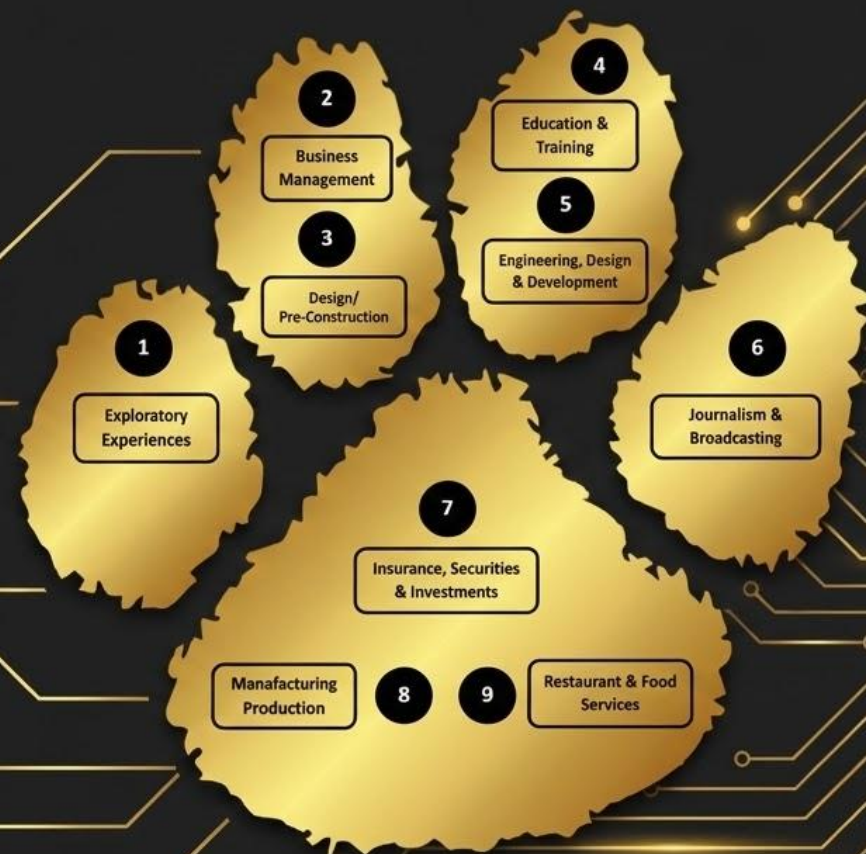
Insurance, Securities & Investments



Manufacturing Production



Restaurant & Food Service





- **GOAL: Connect education and training** to help students to secure jobs and advance in high-demand industries.
- They provide a structured, mapped sequence of credentials and experience.
- Pathway #1 offers students a variety of exploratory experiences
- Pathways #2 – 9 offer students unique experiences within a specific career.



PATHWAY #1

Offers students a variety of exploratory experiences.

PATHWAYS #2 – 9



Offer students unique experiences within a specific career.



BUSINESS MANAGEMENT PATHWAY





PRE-DESIGN/CONSTRUCTION PATHWAY



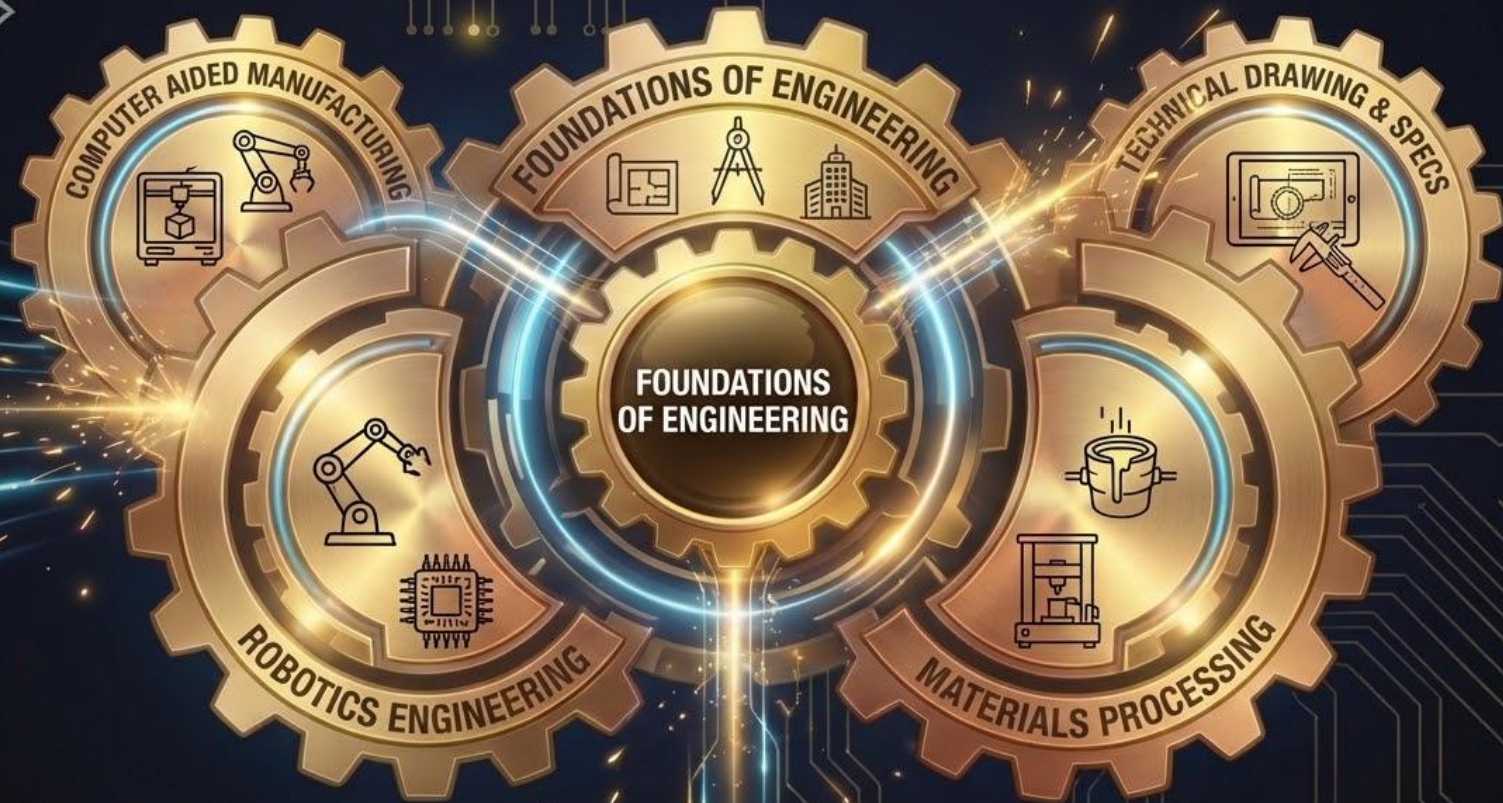


EDUCATION & TRAINING PATHWAY





ENGINEERING, DESIGN & DEVELOPMENT PATHWAY



COMPUTER AIDED MANUFACTURING



FOUNDATIONS OF ENGINEERING

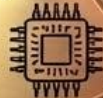


TECHNICAL DRAWING & SPECS



FOUNDATIONS OF ENGINEERING

ROBOTICS ENGINEERING

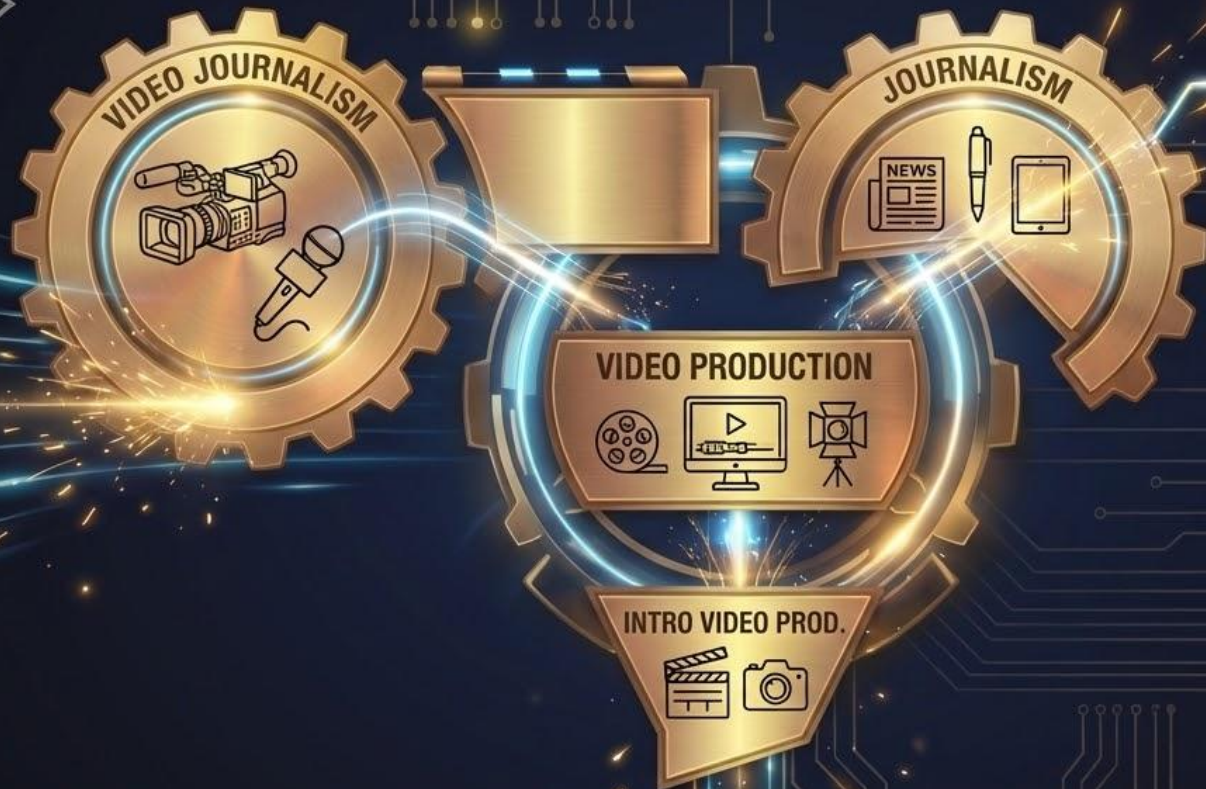


MATERIALS PROCESSING





JOURNALISM & BROADCASTING PATHWAY



Journalism (068) is only taught in the English department. Please refer to the Program of Studies for the course description.



INSURANCE, SECURITIES & INVESTMENTS PATHWAY



Economics (068) is only taught in the SS department. Please refer to the Program of Studies for the course description.



MANUFACTURING PRODUCTION PATHWAY



COMPUTER
INTEGRATED
MANUFACTURING

MATERIALS
PROCESSING

ROBOTICS

ENGINEERING

COMPUTER AIDED DRAFTING & DESIGN



RESTAURANT & FOOD SERVICE PATHWAY





DUAL ENROLLMENT OPPORTUNITIES

Dual enrollment is a key strategy for Career and Technical Education (CTE), allowing high school students to earn college credit while still in high school. We use it to create a seamless transition from secondary to postsecondary education, focusing on practical, career-oriented training.

UCONN

UCONN

INDIVIDUAL & FAMILY DEVELOPMENT

A gold gear-shaped icon with the UConn Husky logo in the center. The text "UCONN" is written at the top and bottom of the gear. Below the gear is a gold banner containing the text "INDIVIDUAL & FAMILY DEVELOPMENT".

GOODWIN UNIVERSITY

GOODWIN UNIVERSITY

TECHNICAL DRAWING & SPECIFICATIONS (BM222)

A gold gear-shaped icon with the Goodwin University logo in the center. The text "GOODWIN UNIVERSITY" is written at the top and bottom of the gear. Below the gear is a gold banner containing the text "TECHNICAL DRAWING & SPECIFICATIONS (BM222)".

QUINNIPIAC UNIVERSITY

FTM110

A gold gear-shaped icon with the Quinnipiac University logo in the center. The text "QUINNIPIAC UNIVERSITY" is written at the top and bottom of the gear. Below the gear is a gold banner containing the text "FTM110".



CREDENTIALING OPPORTUNITIES

OnShape Associate Certificate

Auto Upkeep which gives students a foundational skill set for the Automotive Service Excellence (ASE) certificate.

OSHA 10 Manufacturing General Safety

