



2024-2025 COURSE SYLLABUS

Manufacturing and Design *Advanced Product Innovation*

Teacher: Emmanuel Valadez

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Location: E-1

Office Hours: By Appointment

COURSE OVERVIEW

To prepare students for entry-level employment in a manufacturing engineering environment and successful undergraduate studies in an engineering discipline. Students are trained in CAD/CAM software and Haas CNC controls.

COURSE OBJECTIVES

Upon completion of this course, the student will be able to:

Demonstrate safe use of tools and equipment.

Know common machine tooling and fixtures.

Demonstrate accurate measurement techniques.

Use an engineering design process to solve problems and manage projects.

Achieve intermediate ability to draw 3D parts in Fusion 360

Utilize computer assisted manufacturing with multiple types of professional software.

Perform basic and advanced CNC operations and problem-solving techniques.

Design and manufacture parts and products utilizing multiple processes.

REQUIRED MATERIALS

Notebook

Pens

Pencils

USB (8gb)

Extra Hair Ties (If you have long hair)

CLASSROOM EXPECTATIONS

The manufacturing lab is an industrial environment and requires a higher level of maturity. If used improperly; tools and equipment can cause bodily harm. No hazardous actions will be tolerated. Students will not be permitted to disrupt the class or the learning of others. Behavioral issues will be resolved based upon the severity of the misbehavior. Students who have serious or continuous behavioral problems will be referred to the school administration for resolution. The rules in the shop are firm, to protect students from harm and enhance the learning opportunities.

Respectful behavior is expected in the class: Respect for learning; Respect for property; Respect for boundaries; Respect for others; Respect for yourself.

The class involves everyone's needs for enrichment and advancement; therefore, classroom time means shared time with equal stakes for all. You are expected to respect and maximize this shared time without disruption. Don't waste our time. Please also understand that your personal needs – while important to you – cannot overtake the class agenda. Refer to the John F. Kennedy High School Discipline Policy Handbook for campus-wide rules for behavior and expectations.



SHOP AND CLASSROOM PROCEDURES

Every class session will begin and end in the classroom. You will be expected to be seated in your assigned seat ready to work when the class bell rings, and back in your seat before the dismissal bell rings. Eating in the lab is not permitted as we work with many chemicals and aluminum by-product. All rules and regulations found in the Kennedy High School student handbook will be enforced.

SAFETY

Safety in the shop is crucial. There is zero tolerance for creating unsafe work conditions for yourself, or those around you. Students will be required to complete a safety training course. If students do not complete this course, they may be dropped from the MaD program.

CELL PHONE POLICY

No cellphones in class unless explicitly allowed by the teacher as a tool not a toy. Parents, please do not call your students during class time, if you need to reach your student, call the front office. Headphones follow the same rules. They are only to be used when approved by the teacher and only using one headphone to still be able to hear the teacher and what is happening around you. See Student Handbook for how repeatedly ignoring this may affect you.

ATTENDANCE

Student attendance will be critical to the success of this course. Students needing to make up missed shop activities will need to schedule for a make-up. Only excused absences, cleared within three days will be eligible for a make-up. The student is 100% responsible for contacting me for coursework make-up. Tardiness will be handled according to school policy, please see the Student Handbook for how repeated tardies may affect you.

CLOTHING AND EYE PROTECTION

Proper safe clothing and eye protection will be strictly enforced. No unsecured jewelry or hair will be allowed as a safety precaution. Closed toed shoes are required.

GRADING POLICY

All assignments are worth points and grades will be calculated based on the amount of points earned in each category.

Most work will be completed in class, during class time. Work will be divided into the following categories:

- Final (20%)
- Process (30%)
 - These assignments are preparation for future course content and fundamental skills
- Product (35%)
 - These assignments demonstrate student mastery of course content and skill.
- Shop Jobs/Behavior (15%)
 - Behavior is based on proper shop etiquette. Being safe in this environment is important.

GRADING SCALE

- A = 89.5% - 100%
- B = 79.5% - 89.4%
- C = 69.5% - 79.4%
- D = 59.5% - 69.4%

PLAGIARISM AND CHEATING

Plagiarism/cheating will be dealt with according to the school rules and guidelines. All parties involved in the plagiarism/cheating will receive a zero for the assignment, test, or quiz. Parents of both parties will be notified and no make-up on the assignment, test, or quiz will be permitted.