



### **Tucson High Magnet School - Career and Technical Education**

**Vision:** Foster the desire to be lifelong learners, preparing students for college and career and success in the global community.

**Mission:** Provide high quality instruction in 21st century skills to prepare students for educational and social success.



*Learn, Lead, Live*

### **Course Syllabus For Precision Machining**

**Course Name:** Precision Machining 1-2

**Room:** V158

**Teacher:** Mr. Chris Williams

**Email:** christopher.williams@tusd1.org

**Phone:** (520)225-5241 office

Dear students and parents,

My name is Chris Williams and I am the machine tool technology teacher here at Tucson High School. I would like to welcome you back to a new school year and to this program. This program will provide students with the knowledge and the skills which will be useful to apply towards a trade or college degree. Tucson High School is the only high school in southern Arizona to offer a full time machine tool technology program. Currently, there is high demand for technically skilled people in the industrial workforce.

Attendance is extremely critical in this class in order for students to participate in classroom demonstrations. All of these demonstrations are important to allow the student to physically see how we do certain procedures and setups. Those students that do get behind can use conference periods to get caught up. I encourage all students that are having trouble in the class to come in during a conference period to allow for more individualized instruction. Parents are welcome to call me anytime during the day at 225-5241 and leave a message. My email is [christopher.williams@tusd1.org](mailto:christopher.williams@tusd1.org).

We also operate a student club called "industrial technology club". The purpose of this club allows the students to raise much-needed funds for our classes for supplies and to participate in the Skills USA contests. It will also now be possible to use the \$400.00 tax credit donation to obtain funding for our club. Anybody can now donate up to \$400.00 to the industrial technology club and then get that money back as a credit on their Arizona state income tax. To do this, a check must be written to the "THS industrial technology club" and then remember to apply it towards your state income tax. Any help in this area is much appreciated by both my students and I. All monies received go back into this classroom.

Sincerely,

Chris Williams  
Precision Machining Instructor  
[christopher.williams@tusd1.org](mailto:christopher.williams@tusd1.org)  
Phone 225-5241

---

**Course Overview:**

The Tucson High School machine tool technology program will provide exposure to basic skills in the areas of the machine tool and the manufacturing trades. Since there are many different applications for both of these trades, there are many career opportunities in both of these areas. Students will be exposed to safety instruction, proper attitude, and basic skills related to both of these areas. If a student wishes to pursue a career in one of these areas, the instructor can provide career guidance to students. There are many great opportunities for machinists here in Tucson.

The main objective of the program is to allow students to explore and learn technical skills associated with machine tool technology. Students can apply their skills right out of high school towards a career in a machine shop. However, students are also encouraged to continue their education at Pima College to enhance their skills and enter into an internship. The first priority of the program is to develop a good attitude towards work and safety. Most of the program focuses on the development of basic technical skills such as measurement, design, problem solving, reading and interpreting drawings, operation of basic machines and equipment, utilizing computerized equipment, and basic hand tools. Students can take the advanced level classes to enhance their skills.

Due to severe shortages of skilled technicians across the United States, students can expect to make a good living in a technical area provided that they have the skills and the ability to apply to themselves. The THMS machine tool technology program is a good place to start. Technology can be defined as the utilization and development of knowledge, skills, tools, and materials to create work or to create pleasure. Other people may have different definitions of technology, but the THMS machine tool technology program uses this definition as the foundation of our philosophy. Many people view technology as using advanced electronic equipment such as the computer. We view the computer as just another tool in our inventory that we use to enhance our knowledge and skills to do the work that we need to do. Students wishing to go into the technical trades or to pursue a technical degree after high school may wish to consider taking classes in machine tool technology. We will be dual enrolling our courses with Pima College so a student can earn Pima college credit here at Tucson High School.

**Course Outline:**

1. Soft Skills for employment
2. Career awareness: demand, and different types opportunities in the machining industry
3. Safety: Person, machine specific, hand tool, general, OSHA
4. Measurement: semi precision and precision, inch and metric, angular, inspection
5. Basic blueprint reading and layout, GD&T, layout tools
6. Hand tools: files, hammers, etc. Types and use.
7. Machines: Lathes, Mills, grinders, EDM
8. CNC Introduction
9. Materials, Steels, Stainless Steels, Aluminums, and Brass
10. Coolants and lubricants
11. Machine operations
12. Finishing and abrasives

**Grading Policy:**

---

To receive an A, 90%-100% Total points

- \*A student must turn in **all** required assignments
- \*Demonstrate excellent employability skills
- \***Participate all the time**
- \*Get 90% or better on completed work
- \*Demonstrate good safety habits
- \*Demonstrate a good attitude

To receive a B 80%-89% Total points

- \*A student must turn in most required assignments
- \* Demonstrate good employability skills
- \*Participate all the time
- \*Get 80% or better on completed work
- \*Demonstrate good safety habits
- \*Demonstrate a good attitude

To receive a C 70%-79% Total points

- \*A student must turn in most required assignments
- \* Demonstrate average employability skills
- \*Participate most of the time
- \*Get 70% or better on completed work
- \*Demonstrate good safety habits
- \*Demonstrate a good attitude

To receive a D 60%-69% Total points

- \*Get 60% or better for participation and completed work

To receive an F 59% and below

- \*Poor attendance
- \*Don't do anything or very little
- \*60% or below on completed work

**Cheating will result in a grade F for that project!!**

This can cause you to fail an entire semester if it is one of the nine-week projects. What constitutes cheating? Turning in work that you did not do, or doing work for someone else and they turn it in. In that case two people fail. **Honesty and integrity is held in high regard in this class.**

**Grade Weight:**

---

20% of the grade will be the soft skills or employability skills. These are the skills that will allow a student to obtain and keep employment. Students who do not demonstrate these skills will begin to lose credit towards their grade. Things that a student will lose credit on is those things that can get a person fired from a job which includes poor attitude, persistent use of foul language, having to be constantly told to keep their safety glasses on, tardiness, lack of integrity, poor work habits, poor attendance, leaving the room without permission.

80% of grade will be student projects, tests, and assignments performed. Students are expected to complete projects and assignments. Alternative assignments are available for those who are absent or suspended. **These alternative assignments may be assigned to those people sitting in the classroom doing nothing.** When assigned, Students are expected to complete the assignments and held against their grade.

1. Classroom Expectations:
2. Students are expected to work in a manner that is safe and respectful to one self and others.
3. Students are to wear safety glasses while in work areas. Students will be warned verbally 2 times prior to a written warning for a parent to sign before being removed from class.
4. Long hair must be tied back and up where it cannot get caught in a machine
5. Students must follow all safety rules as outlined on the safety test study sheet.
6. Ipods, MP3's, and headphones and other electronic entertainment will not be permitted in this class. First I will ask you to put it away, second I will ask for it so you can pick it up after school if you bring it to class again. After that you will be asked to leave with a referral or detention. This is a safety issue when working in shop. Keep IPODS, MP3's, and phones in pocket.
7. Students are not to hang around out in the hallway outside the door.
8. Textbooks are to stay in the classroom. Some Textbooks may be checked out if needed.
9. Tampering and sabotaging machines will result in removal from class.
10. Making of weapons, drug paraphernalia, or other unauthorized projects will result in removal from class.
11. Each student will have their own safety glasses. These items should not be shared with other students. They will be provided.
12. Hall passes are a privilege and shouldn't be abused. Hall passes are for the bathroom and nurse only. No hall passes will be given out during the first ten minutes and last ten minutes of class. Students will have to sign out with my initial before leaving. Anyone not doing so will be leaving class without permission.
13. Leaving class before the bell rings will be marked as an unexcused absence.
14. Food and drinks are not allowed in the computer room for obvious reasons. Also no games or inappropriate use of the network.
15. Students are to stay out of storage rooms and the office unless permission is given.
16. School dress code enforced.
17. I must approve all projects done in this class with a set of plans that include a drawing with dimensions. Projects that are not approved by me may be taken away.
18. Making threats towards the school or other students can bring big trouble for you even if you may be kidding around.
19. Squirting or throwing oil, grease, and other types of fluids will result in removal from class.
20. Students are to stay out of the other shop areas unless approved by the instructor
21. Tardy Policy is school policy.

**CTSO:** Our Career and Technical Student Organization is Skills USA. Students have the opportunity to participate and compete in Skills USA activities. More information can be found at <http://www.azskillsusa.org/> and <http://www.skillsusa.org>

---

**Course standards can be viewed at:**

**[http://www.aztechprep.org/CTE\\_Programs/Career\\_Prep/Precis\\_Mfg/precis\\_mach.html](http://www.aztechprep.org/CTE_Programs/Career_Prep/Precis_Mfg/precis_mach.html)**

**\*\*\*Please return this page to Mr. Williams after obtaining signatures\*\*\***

---

**Student and Parent/Guardian Signatures**

Your signatures below indicates that you have read, understand and agree to abide by the contents of this syllabus.

\_\_\_\_\_  
Student Name Printed

\_\_\_\_\_  
Student Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Parent/Guardian Name Printed

\_\_\_\_\_  
Parent/Guardian Signature

\_\_\_\_\_  
Date

Parent/Guardian Phone Number: \_\_\_\_\_

Parent/Guardian Email Address: \_\_\_\_\_