# Precision Machining Technology

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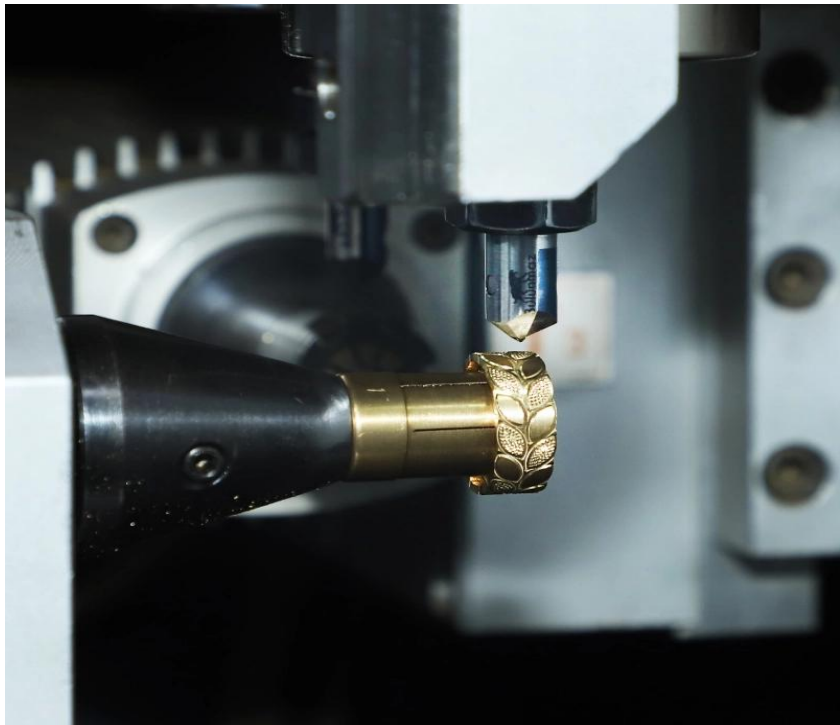


# What is Precision Machining?

Precision machining is a specialized subtractive manufacturing process that removes material from raw workpieces using computer-controlled tools. It's essential for creating complex, high-tolerance components in metals, plastics, or composites.

Processes include:
- Manual Machining (lathe and mill)
- Grinding: Post heat treating process
- CNC (Computer Numerical Control)

These are guided by advanced CAD/CAM software such as SolidWorks and Mastercam.

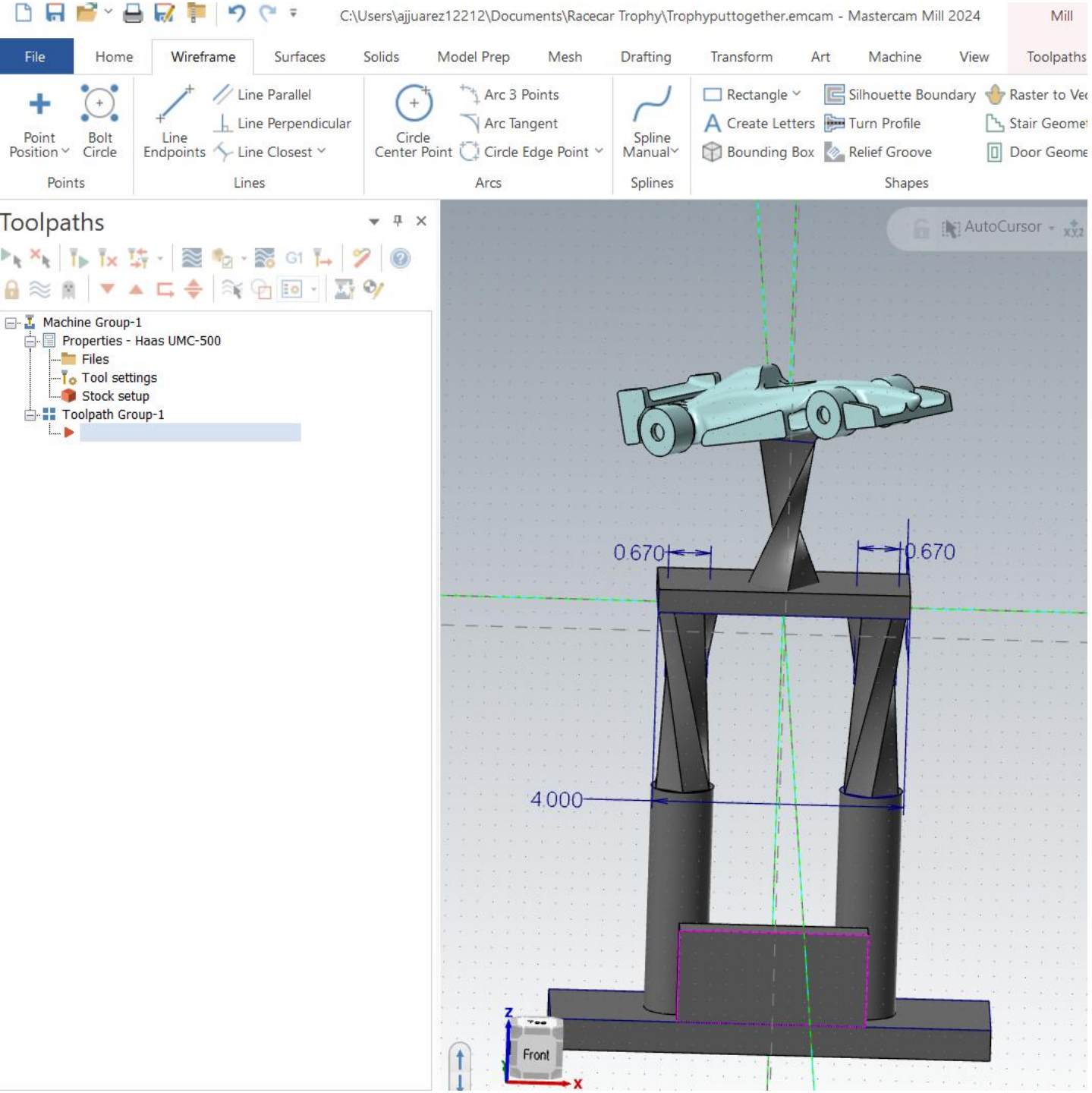
# Education Pathway

100 percent job placement, with our money back guarantee every students is guaranteed to get a job within 6 months of graduation but our goal is to have students start interviewing and secure jobs before they graduate.

- Certificate 1: Intro to machining and safety $5800
- Certificate 2: Advanced CNC operations $9000
- AAS Degree: Associate of Applied Science in PMT includes precision grinding and Tool & Die integrated this new fiscal year $14000

DMLS Surface Finish
(without post processing)

Machined Surface Finish




# Dual Enrollment

- South Texas ISD Academy -Mercedes.

# Industries

Aerospace:
- Turbine blades (balance & heat resistance)
- Landing gear (heavy-load tolerance)
- Avionics housings (sensor protection)

Medical:
- Surgical tools (precise cuts)
- Implants (custom-fit)
- Lab-on-chip devices (microscale flow paths)

Automotive:
- engine (micron accuracy)
- Gear shafts (smooth rotation)

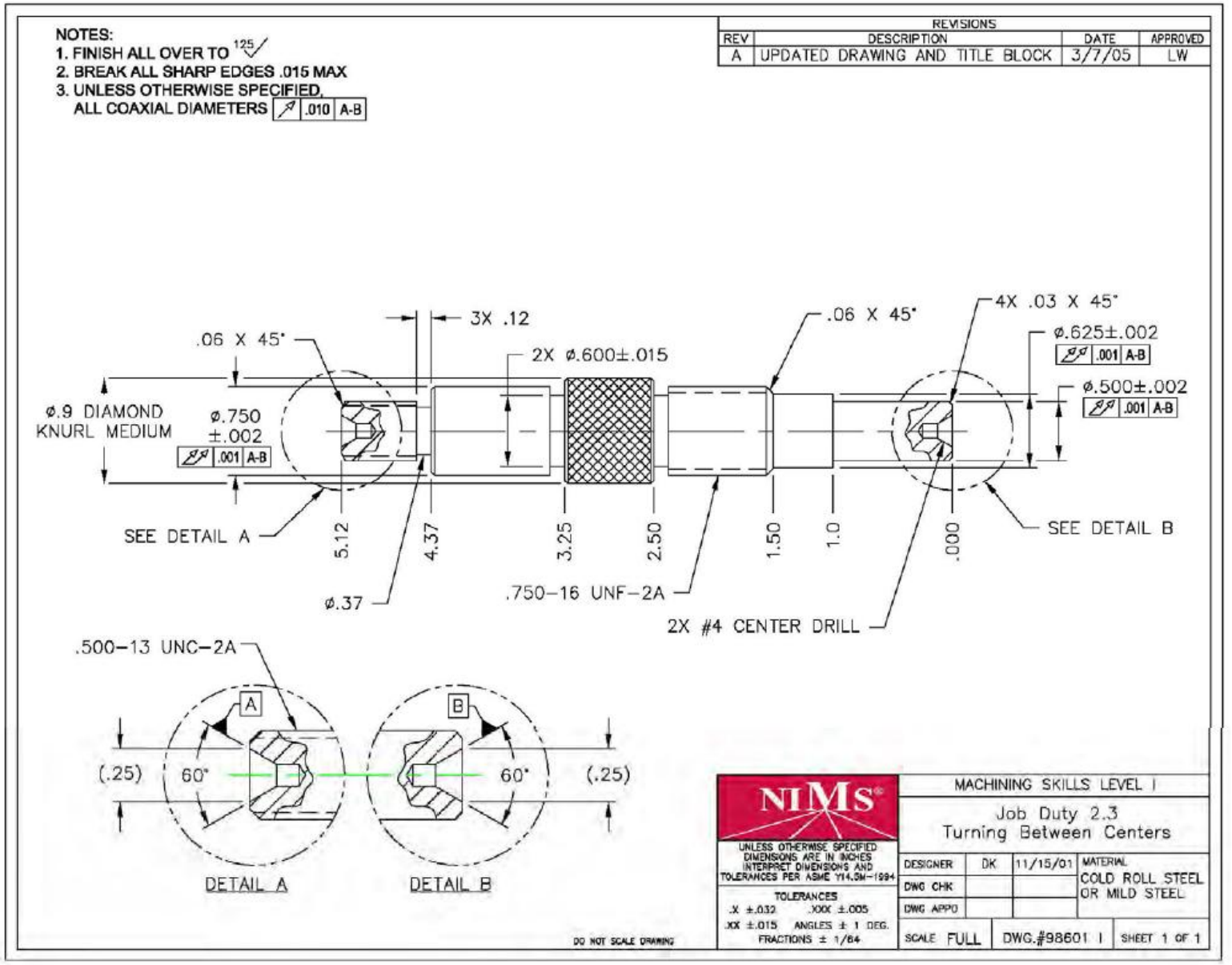
Industrial Equipment:
- Hydraulic pistons
- Dies for molding
- High-speed bearings

Electronics:
- Micro heat sinks
- PCB component housings
- EMI-shielded enclosures

# Blueprints

Blueprints are detailed engineering drawings used to communicate part specifications to machinists. They include:

- Dimensions and tolerances
- Material specs
- Finishing requirements
- Symbols for machining processes

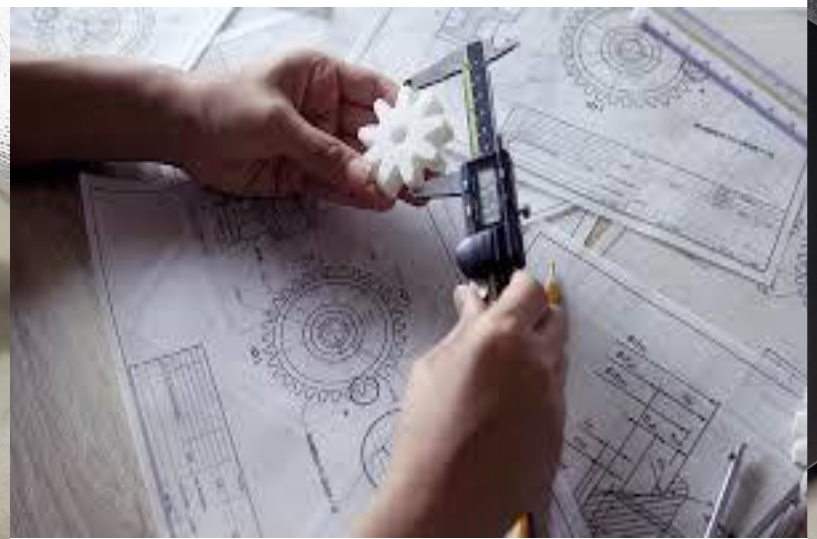


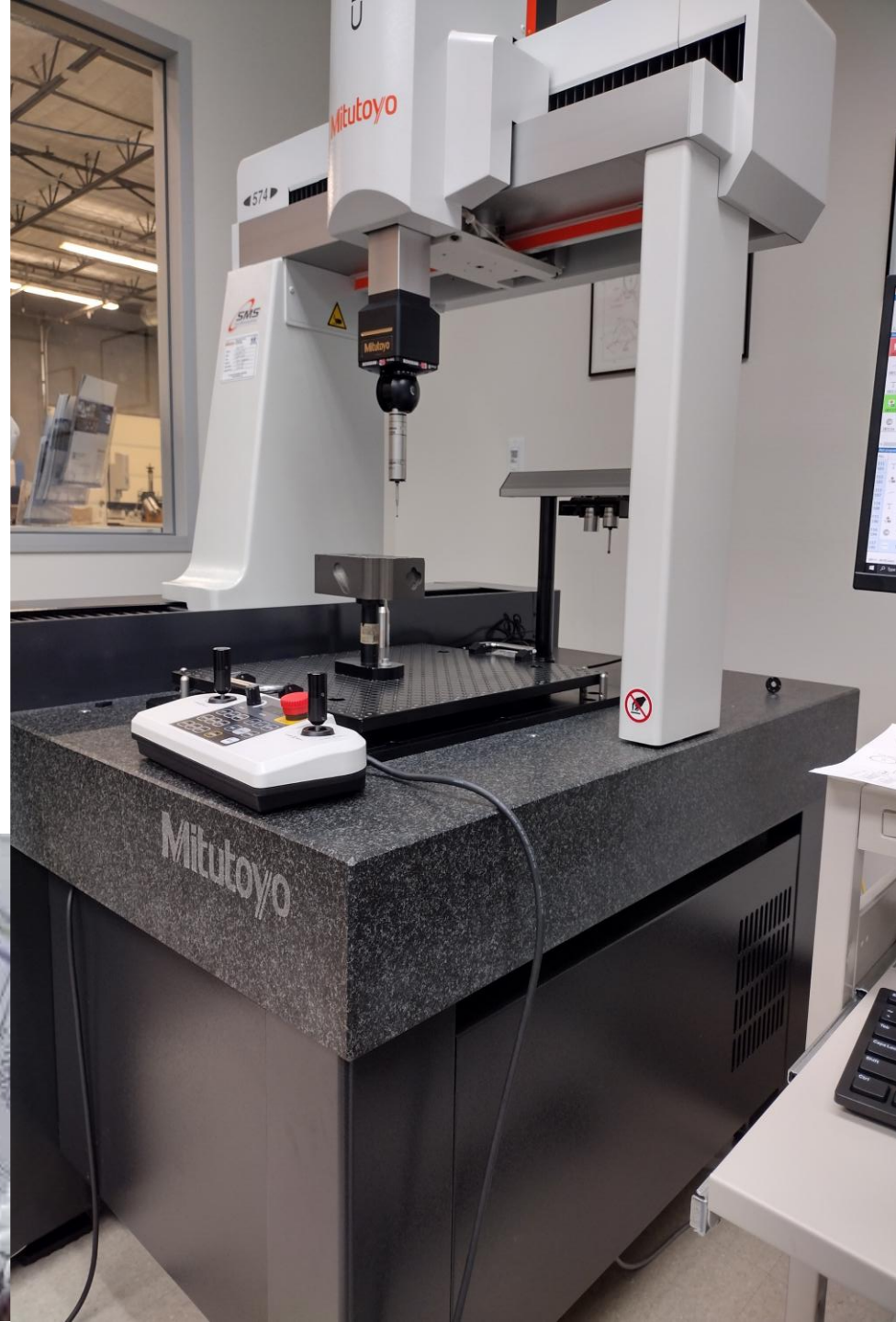
# Metrology

Metrology is the science of measurement. Precision tools include: A hair's small size, typically between 50 (.002) and 120(.004) microns. Split a hair 3 ways calipers can measure, split one of those strands 10x and micrometer can measure.

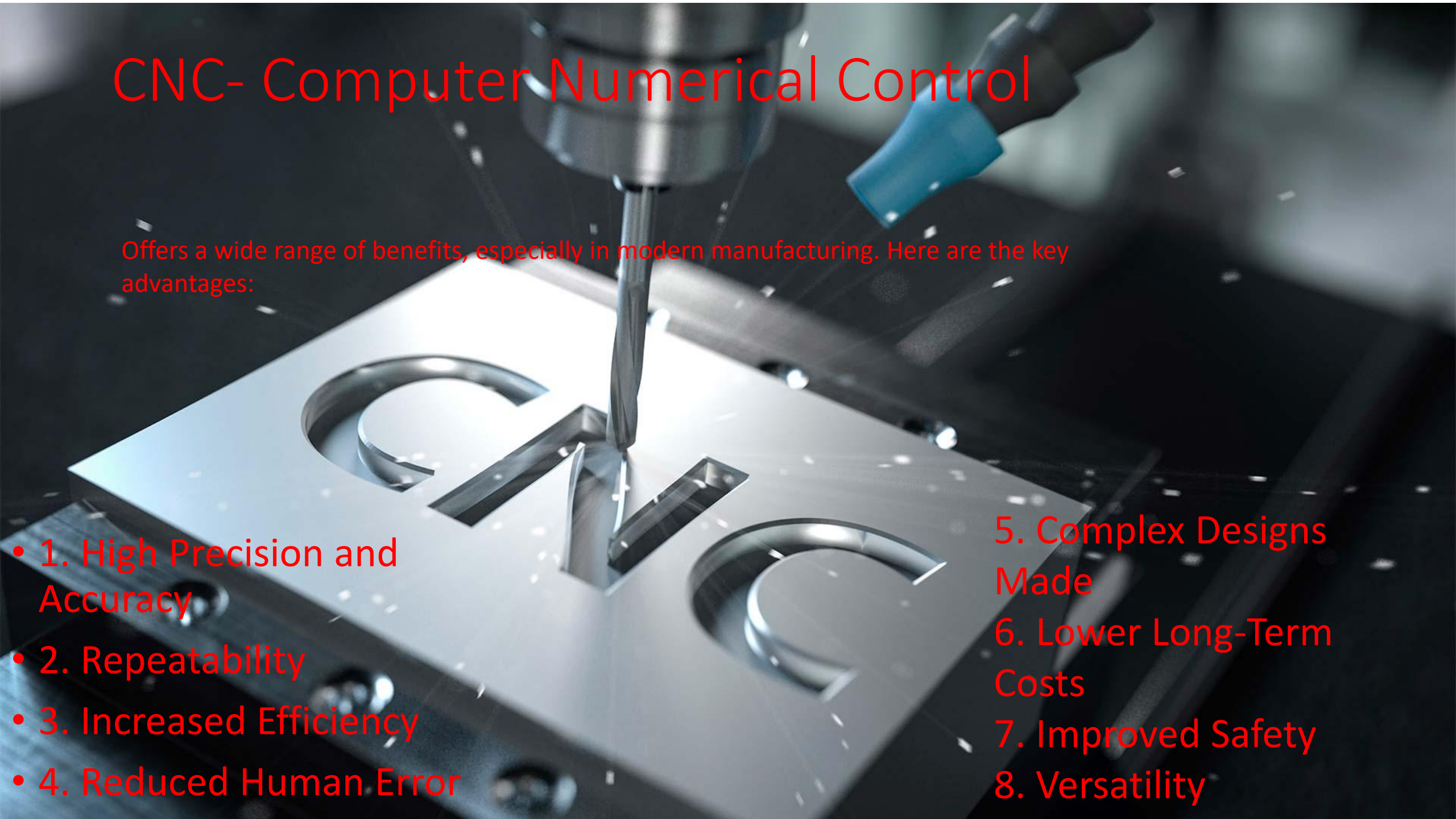
- Calipers & Micrometers: For external dimensions
- Depth Micrometers: For holes or recesses
- CMM (coordinate measuring machine): These are the foundation of quality control in PMT.

Accuracy and consistency are key to meeting part specifications.





# CNC- Computer Numerical Control



Offers a wide range of benefits, especially in modern manufacturing. Here are the key advantages:

- 1. High Precision and Accuracy
- 2. Repeatability
- 3. Increased Efficiency
- 4. Reduced Human Error

5. Complex Designs Made
6. Lower Long-Term Costs
7. Improved Safety
8. Versatility

# Industry Partners

PMT students gain exposure to real-world applications through partnerships with leading companies:

- James Avery (Jewelry – SA, TX)
- Raytheon / Standard Aero (Aerospace – Dallas)
- Toyota (Automotive – SA, TX)
- Delta Centrifugal (Oil – Temple, TX)
- LaRue Tactical (Defense – Leander, TX)
- SpaceX & Tesla (Aerospace/EVs)
- Fisher Dynamics (vehicle components)
- Cox Manufacturing (Various)

Raytheon

LaRue Tactical

JAMES AVERY artisan jewelry

TOYOTA

DELTA CENTRIFUGAL

# Skills Acquired

- HAAS CNC Certification: Operating CNC mills & lathes
- ACE Certification: Applied technical training for industry readiness
- Blueprint Reading: Including GD&T standards
- Mastercam Certification: CAM software for part programming
- Multi-Axis Programming: 3, 4, and 5-axis CNC operations

# PBE (Performance-Based Education

- Allows individuals to accelerate at there own pace to ensure they fully grasp the material and develop skills
- Hybrid based which gives flexibility
- Training is delivered on an as-needed basis allowing individuals to access relevant information and skills when they are ready to apply them.
- a class and continue without waiting for the next semester


47%
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