

# MACHINE SHOP

Instructor	Keith Myers
E-mail	kmyers@wactc.net
Phone	(724) 746-2890 Ext. 149
CIP Code	48.0501



## COURSE OBJECTIVE

Students will obtain education and skills that emphasize CNC computerized training in order to place students in modern, high-tech positions. The manual lathe and milling and grinding will also be covered in depth.

## COURSE DESCRIPTION

This three-year course provides tenth, eleventh and twelfth graders the skills needed for entry into the Machining field through basic, hands-on machining practice on lathes, milling machines and grinders. Topics include set-up, tool selection and methods used on various materials such as steel, aluminum and brass. Computer-part programming and machine operation are also included in the training.

Computerized Machining | Manual Machining | Programming Software

## REQUIRED SUPPLIES

Leather Work Boots (Steel Toe Required) | Safety Glasses (Clear Lenses)  
Shop Shirt (Royal Blue Polo) | Workwear Pants (Black)

## TEXTBOOKS

*Machinery's Handbook, 27<sup>th</sup> Edition*; Erik Oberg; Tooling U Online  
*Machinist's Ready Reference*; C. Weingartner; Tooling U Online  
*Haas Mill Operator's Manual*; 2005  
*Haas Lathe Operator's Manual*; 2005

## COOPERATING COMPANIES

Allegheny Technologies, Inc. (ATI)	Range Resources
Bradley Machine	Ross Mould–Washington, PA
Caff Company	Testa Machine Company, Inc.–Slovan, PA
Davan Manufacturing	Tygard Machine & Manufacturing Co., Inc.
Lincoln Manufacturing–Washington, PA	Walter USA
Millenium Machine, Inc.–Washington, PA	Weld Tooling, Inc.
Miller Plastics	Wynn Machine Works, Inc.
Perryman Company–Houston, PA	

## SPECIALIZED SHOP EQUIPMENT

Computerized Lathes | Computerized Mills | GIBBS CAM Programming Software  
Mastercam Parts Programming Software

---

## CERTIFICATIONS

---

National Institute for Metalworking Skills, Inc.: CNC Milling-Programming Setup and Operations; CNC Turning:-Programming Setup and Operations; Machining Level I CNC Milling; Machining Level I CNC Turning; Manual Milling; Manual Turning Between Centers; Manual Turning with Chucking; Machining Level I Measurement, Materials and Safety; Machining Level I Planning, Benchwork and Layout

---

## ARTICULATION AGREEMENTS

---

California University of Pennsylvania–Industrial Technology  
Pennsylvania College of Technology–Machinist, General  
Westmoreland County Community College–Computer Numerical Control Technology; Machine Technology

---

## POST-SECONDARY TRAINING OPTIONS

---

Community College of Allegheny County–Machine Shop Technology  
Pennsylvania College of Technology–Machine Shop Technology  
Robert Morris University–Engineering  
Westmoreland County Community College–Machine Technology

---

## POTENTIAL CAREERS

---

CNC Machine Operator | Computer Programmer | Foreman | Machine Shop Owner | Machinery Sales  
Machinist | Mold Maker | Quality Control Technician | Tool and Die Maker

---

## MACHINIST SKILLS

---

**Operation and Control** — Controlling operations of equipment or systems.

**Operation Monitoring** — Watching gauges, dials, or other indicators to make sure a machine is working properly.

**Mathematics** — Using mathematics to solve problems.

**Equipment Selection** — Determining the kind of tools and equipment needed to do a job.

**Troubleshooting** — Determining causes of operating errors and deciding what to do about it.

**Reading Comprehension** — Understanding written sentences and paragraphs in work related documents.

**Quality Control Analysis** — Conducting tests and inspections of products, services, or processes to evaluate quality or performance.

**Equipment Maintenance** — Performing routine maintenance on equipment and determining when and what kind of maintenance is needed.

**Active Learning** — Understanding the implications of new information for both current and future problem-solving and decision-making.

**Active Listening** — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate and not interrupting at inappropriate times.

---

## WAGES AND EMPLOYMENT TRENDS FOR MACHINISTS

---

Median Wages (2020)	\$22.62 Hourly, \$47,040 Annually
Number of Jobs (2019)	460,600 Employees
Job Outlook (2019-2029)	3% (As Fast as Average)
Employment Change (2019-2029)	12,400

Source: *Occupational Outlook Handbook*

**WESTERN AREA CAREER & TECHNOLOGY CENTER**  
**MACHINE SHOP**  
2021-2022 Shop Requirements

**Shop Uniform/Accessories**

- Leather Work Boots (Steel-Toed Required)
- Polo Shirt, Royal Blue (Use Enclosed Order Form)
- Safety Glasses (First Pair Provided by Western Area CTC)
- Workwear Pants, Black

**APPROXIMATE COST: \$120**

Hats are not permitted in the shop. Order uniform polo shirts by mailing the enclosed order form to TNT Manufacturing or by ordering online at [companycasuals.com/WACTC](http://companycasuals.com/WACTC). All uniform orders are delivered to Western Area and will be distributed to students after the start of the school year.

Uniform pants may be purchased at any discount chain or department store. Workwear brands such as Dickies, Dockers and Carhartt are suggested. Lost or broken safety glasses may be replaced throughout the year in the Main Office. Cost is approximately \$3.

Lockers are provided for students to change out of street clothes into their uniforms. Locks must be purchased from WACTC; cost is approximately \$6.

Clinical activities/learning situations may require that any body piercings be removed and any tattoos covered.

Students may be required to wear professional clothing for vocational student organization conferences, competitions and meetings.

**All criteria is subject to change.**