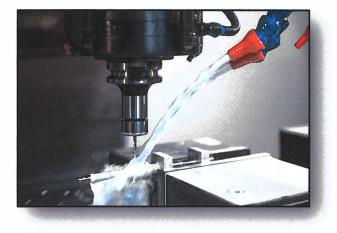
# **MACHINE SHOP**

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

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

Source: Occupational Outlook Handbook