

## **MACHINE OPERATIONS**



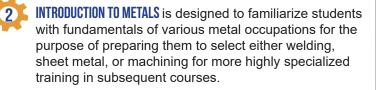
The Manufacturing cluster uses your skills in planning and organization along with your love of technology, engineering and design to work in careers processing materials into products. Careers also include related professional and technical support activities such as production planning, production design, maintenance, and engineering.

The employment of welders, cutters, solderers, and brazers is expected to grow. New power generation facilities and natural gas pipelines also are being built, which will increase the need for these professionals. More machinists and tool and die makers also will be needed in the coming years. Modern manufacturing includes all intermediate processes required for the production and integration of a product's components. Some industries, such as semiconductor and steel manufacturers, use the term fabrication instead.

## **HIGH SCHOOL PATHWAY CLASSES**



INDUSTRY FUNDAMENTALS & OCC SAFETY is designed as the foundational course in the Carpentry, Plumbing, Electrical, Masonry, Machining, Welding, Sheet Metal, Heating, Ventilation, Air Conditioning and Refrigeration, and HVACR Electrical pathways to prepare students for pursuit of any career in construction. Students obtain the basic knowledge to function safely on or around a construction site and in the industry in general and will provide the trainee with the option for an Industry Certification in the Construction Core.



MACHINING OPERATIONS I acquaints the students with the history of the machining trade, equipment used in the trade, attributes of successful machinists, industry credentialing, and career opportunities. Course topics include safety, applied mathematics, measuring instruments, blueprint reading, and metallurgy. Practical experience will be gained in the proper use and maintenance of hand tools, the pedestal grinder, the drill press, and band saws.

## **CAPSTONE: WBL INTERNSHIP**



WBL (WORK-BASED LEARNING) connects skilled, knowledgeable and driven students to local businesses every year. Students who participate in the Manufacturing program and have been selected to participate in WBL will leave school early to work with our fantastic



business partners. Benefits to students include a chance to put skills learned in the classroom to use in an authentic setting, getting a competitive advantage on their career and networking with industry leading professionals all while still in high school. www.hallcowbl.org

## CAREER TECH STUDENT ORGANIZATIONS



**SKILLSUSA** is a partnership of students, teachers and industry working together to ensure America has a skilled workforce. We help each student excel.

SkillsUSA's mission is to empower its members to become world-class workers, leaders and responsible American citizens. We improve the quality of our nation's future skilled workforce through the development of SkillsUSA Framework skills that include personal, workplace and technical skills grounded in academics. Our vision is to produce the most highly skilled workforce in the world, providing every member the opportunity for career success.



# **POTENTIAL CAREERS**



- Machinists
- Layout Workers, Metal & Plastics
- Manufacturing Production
- Technicians
- Mechanical Engineering Technicians
- Metal-Refining Furnace Operators
- Mechanical Engineers
- Industrial Engineers
- Multiple Machine Tool Setters, Operators & Tenders
- Nuclear Power Reactor Operators
- · Patternmakers, Metal & Plastic



# MACHINE OPERATIONS

**CAREER PATHWAY - PLAN OF STUDY** 



#### **ENGLISH/LANGUAGE ARTS**

4 Units Must Include: 9th Grade Literature & American Literature

#### **SOCIAL STUDIES**

3 Units Must Include: World History, US History, Government & Economics

#### MATHEMATICS

4 Units Must Include:

GSE Algebra I, GSE Geometry & GSE Algebra II

one additional GSE/AP/IB/DE Math course

GSE Accelerated Algebra I/Analytic Geometry A, GSE Accelerated Geometry B/Algebra II, GSE Precalculus

one additional GSE/AP/IB/DE Math course

#### **SCIENCE**

4 Units Must Include: Physical Science or Physics; Biology;

Chemistry, Earth Systems, Environmental Science or AP/IB course

one additional Science course

## **HEALTH & PERSONAL FITNESS**

1 Unit Must Include: 1/2 unit of each

#### CAREER, TECHNICAL & AGRICULTURE EDUCATION (CTAE)

3 Units Must include:

Industry Fundamentals & Occ. Safety, Introduction to Metals, Machining Operations I

#### **ELECTIVES**

4 Units

\*Students planning to attend most post-secondary institutions must take 2 units of the same modern language.

#### **TOTAL UNITS REQUIRED**

23 Units

# **PERSONAL APTITUDES**



#### **ACTIVITIES THAT DESCRIBE WHAT I LIKE TO DO:**

- · Work with my hands & learn that way.
- · Put things together.
- · Visualize objects in 3D from flat drawings.
- Apply math to work out solutions.
- Use hand & power tools and operate equipment/machinery.



#### PERSONAL QUALITIES THAT DESCRIBE ME:

Practical

- · Step-by-step thinker
- Observant

- Coordinated
- Physically active

#### **WANT MORE INFORMATION ON YOU?**

YouScience is the science of YOU – how your mind is wired, what makes you tick, the skills and knowledge that set you apart. You have talent and there's a path that's right for you we can help you find it.

Login to Infinite Campus and locate the SLDS Portal link on the left. Once logged in, click on "My Career Plan" then choose "Go to YouScience".

#### WHAT YOU LEARN IN SCHOOL MATTERS

You're learning skills and knowledge that can make you a qualified candidate for in-demand careers. Industry-recognized certifications, available to all pathway students, are great signals to employers that you have the skills they're looking for. Certifications help validate what you know, so other people know, that you know it.

#### **OUESTIONS?**

**POST-SECONDARY** 

Contact your CTAE teacher, WBL Coordinator or School Counselor

# PATHWAY TO FUTURE CAREER OPTIONS



### HIGH SCHOOL

Pathway Courses Capstone

**Technical College** 

4 Year College/University

**WBL** Internship **Dual Enrollment** 

Certificate **Diploma Program Degree Program** 

**Bachelor Degree Masters Degree Graduate Studies** 





