

Appendix A

WORK PROCESS SCHEDULE AND RELATED INSTRUCTION OUTLINE



HILLYARD TECHNICAL CENTER/SAINT JOSEPH SCHOOL DISTRICT

**For the Occupation of:
CNC OPERATOR – MILLING & TURNING**

**O*NET-SOC CODE: 51-4034.00
RAPIDS CODE: 1094CB**

**Developed in Cooperation with:
U.S. DEPARTMENT OF LABOR
OFFICE OF APPRENTICESHIP**



Appendix A

WORK PROCESS SCHEDULE
HILLYARD TECHNICAL CENTER/ST. JOSEPH SCHOOL DISTRICT
CNC OPERATOR – MILLING & TURNING
O*NET-SOC CODE: 51.4034.00 RAPIDS CODE: 1094CB

This schedule is attached to and a part of these Standards for the above identified occupation.

1. APPRENTICESHIP APPROACH

Time-based Competency-based Hybrid

2. TERM OF APPRENTICESHIP

The term of the apprenticeship is a minimum OJL attainment of **2,000-4,000 hours**, supplemented by the minimum required **288** hours of related instruction.

3. RATIO OF APPRENTICES TO JOURNEYWORKERS

The apprentice to journeyworker ratio is: 1 Apprentice to 1 Journeyworker.

4. APPRENTICE WAGE SCHEDULE

Apprentices shall be paid a progressively increasing schedule of wages based on either a percentage or a dollar amount of the current hourly journeyworker wage rate as determined by employers/advisory committee.

Starting Pay: \$13.00 with increase @ 500 OJT + positive review: \$13.50

5. PROBATIONARY PERIOD

Every applicant selected for apprenticeship will serve a probationary period of approximately 90 days . Students readiness for continuation in the program will be assessed at spring conferences. Input will be collected from the student's home school, technical instructor and employer.



6. SELECTION PROCEDURES

Students engage in a rigorous selection process for apprenticeship positions. Students apply online to indicate interest in preapprenticeship. Students are selected for preapprenticeship based on recommendation by the sending school counselor and their technical instructor.

The Apprenticeship Coordinator promotes diversity in the program by making it accessible to all who are interested. Students receive support in composing a resume, preparing for interviews, researching job opportunities and companies, completing OSHA training and workplace communication. Students who follow through and complete these tasks dutifully will be presented to employers as candidates for hire. Those who procure employment become registered apprentices with our program upon confirmation with the sending school and parent/guardian.

All Registered Youth Apprentices are celebrated at a spring signing ceremony and become the next cohort for our program.



**WORK PROCESS SCHEDULE
 HILLYARD TECHNICAL CENTER/ST. JOSEPH SCHOOL DISTRICT**

CNC OPERATOR – MILLING & TURNING	
Job Description: Set up, operate, or tend lathe and turning machines to turn, bore, thread, form, or face metal or plastic materials, such as wire, rod, or bar stock.	
RAPIDS Code: 1094CB	O*NET Code: 51-4034.00
Estimated Program Length: 2,000-4,000 hours	
Apprenticeship Type: <input checked="" type="checkbox"/> Competency-Based <input type="checkbox"/> Time-Based <input type="checkbox"/> Hybrid	

Suggested On-the-Job Learning Outline

Apprenticeship Competencies – Technical

The below on-the-job-learning (OJL) work process competencies are intended as a guide. It need not be followed in any particular sequence, and it is understood that some adjustments may be necessary in the hours allotted for different work experience. In all cases, the apprentice is to receive sufficient experience to make them fully competent and use good workmanship in all work processes, which are a part of the trade. In addition, the apprentice shall be fully instructed in safety and OSHA requirements.

Ratings are:

- No Exposure- Apprentice has not been exposed to this skill/concept yet.
- Not Mastered- Apprentice requires instruction and close supervision.
- Requires Supervision- Apprentice can complete task with limited or periodic supervision.
- Proficient- Can work independently without supervision

SAFETY	No Exposure	Not Mastered	Requires Supervision	Proficient
OSHA 10 Certification				
Identify & demonstrate usage of machinery safety (HTC)				
PPE				
Demonstrate compliance with lockout/tagout procedures				



MACHINING TASKS	No Exposure	Not Mastered	Requires Supervision	Proficient
Adjust machine controls and change tool settings to keep dimensions within specified tolerances.				
Compute unspecified dimensions and machine settings, using knowledge of metal properties and shop mathematics.				
Crank machines through cycles, stopping to adjust tool positions and machine controls to ensure specified timing, clearances, and tolerances.				
Inspect sample workpieces to verify conformance with specifications, using instruments such as gauges, micrometers, and dial indicators.				
Install holding fixtures, cams, gears, and stops to control stock and tool movement, using hand tools, power tools, and measuring instruments.				
Lift metal stock or workpieces manually or using hoists, and position and secure them in machines, using fasteners and hand tools.				
Mount attachments, such as relieving or tracing attachments, to perform operations, such as duplicating contours of templates or trimming workpieces.				



Move controls to set cutting speeds and depths and feed rates, and to position tools in relation to workpieces.				
Move tool holders manually or by turning handwheels, or engage automatic feeding mechanisms to feed tools to and along workpieces.				
Position, secure, and align cutting tools in tool holders on machines, using hand tools, and verify their positions with measuring instruments.				
Refill, change, and monitor the level of fluids, such as oil and coolant, in machines.				
Replace worn tools, and sharpen dull cutting tools and dies, using bench grinders or cutter-grinding machines.				
Select cutting tools and tooling instructions, according to written specifications or knowledge of metal properties and shop mathematics.				
Start lathe or turning machines and observe operations to ensure that specifications are met.				
Study blueprints, layouts or charts, and job orders for information on specifications and				



tooling instructions, and to determine material requirements and operational sequences.				
Turn valve handles to direct the flow of coolant onto work areas or to coat disks with spinning compounds.				
Maintains equipment by completing preventive maintenance requirements; following manufacturer's instructions; troubleshooting malfunctions; calling for repairs.				
Read work orders or other instructions to determine product specifications or materials requirements.				

Behavioral Competencies	4- Exceeds Target	3- Achieves Target	2- Meets Some Targets	1- Not Meeting Targets
Manufacturing Basics: Student shows a basic understanding of Manufacturing and desire to learn the industry.				
Communication: Student is receptive to learning and communicates effectively with coworkers.				
Enthusiasm & Attitude: Student shows a positive mental attitude and enthusiasm toward learning.				
Leadership & Teamwork: Student contributes ideas and collaborates with coworkers to accomplish goals.				



Networking: Student communicates well within the workplace in order to further productivity.				
Problem Solving & Critical Thinking: Student identifies solutions to most problems and knows when and who to ask for help.				
Professionalism: Exhibits appropriate behavior on the job and is productive.				

Date of evaluation: _____ Company Name: _____

Apprentice Name: _____ Apprentice Signature: _____

Mentor Name: _____ Mentor Signature: _____

Date turned in: _____ Instructor Signature: _____

**RELATED INSTRUCTION OUTLINE
CNC OPERATOR – MILLING & TURNING
O*NET-SOC CODE: 51.4034.00 RAPIDS CODE: 1094CB**



Please provide the Related Instruction Outline to include a list of the anticipated courses, the learning objectives, and the estimated number of hours that each course will last.

Related Technical Instruction provided by Hillyard Technical Center, Saint Joseph, Missouri <https://hillyardtech.sjsd.k12.mo.us/>

Each apprentice **will receive annual compliance training in anti-harassment** in accordance with Paragraph 30.3, CFR. 29.30. Additional resources can be found at <https://www.apprenticeship.gov/eo/sponsors/prevent-harassment>

Course Descriptions:

Precision Machining Course (9200/9205):

Instructor: Dennis Luke

This program is for students who want to get an entry level position as a skilled machinist using manufacture industrial machinery; motor vehicle machinery; primary metals machinery; or construction equipment and it will satisfy the **the minimum 288 hours of Related Technical Instruction (RTI)**.

First year: Safety; trade terms; hand tools; how to use: lathe, milling machine, band saw; how to measure within 1/100,000th of an inch; manufacturing process; blueprint reading; machine tool; introduction to computers; materials of industry; industrial mathematics; machine tool.

Second year: Introduction to Computer Aided Drafting (CAD); how to use the computer numerically controlled milling machine(CNC); craftsmanship; and job applications.