

Appendix A

WORK PROCESS SCHEDULE TOOL PROGRAMMER, NUMERICAL O*NET/SOC CODE: 51-4012.00 RAPIDS CODE: 0690

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

1. TERM OF APPRENTICESHIP

The term of the occupation shall be 3 Year with an OJL attainment of 6000 hours supplemented by the required hours of related instruction.

2. RATIO OF APPRENTICES TO MENTORS

One (1) Apprentice may be employed in each department and/or jobsite employing one (1) qualified Mentor.

3. APPRENTICE WAGE SCHEDULE

Apprentices shall be paid a progressively increasing schedule of wages based on a percentage of the current Mentor wage rate.

Note: Sponsoring Employers will show their Mentor wage rate on the Employer Acceptance Agreement

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Process Schedule)

The Sponsor may modify the work processes to meet local needs prior to submitting these Standards to the appropriate Registration Agency for approval.

5. SCHEDULE OF RELATED INSTRUCTION (See attached Related Instruction Outline)

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Description: Plans numerical control program to control contour-path machining of metal parts on automatic machine tools: Analyzes drawings, sketches, and design data of part to determine dimension and configuration of cuts, selection of cutting tools, and machine speeds and feed rates, according to knowledge of machine shop processes, part specifications, and machine capabilities. Determines reference points and direction of machine cutting paths. Computes angular and linear dimensions, radii, and curvatures, and outlines sequence of operations required to machine part. Prepares geometric layout on graph paper or using computer-assisted drafting software to show location of reference points and direction of cutting paths, using drafting instruments or computer. Writes instruction sheets and cutter lists to guide setup and operation of machine. Writes program of machine instructions in symbolic language to encode numerical control tape or direct numerical control data base to regulate movement of machine along cutting path. Compares encoded tape or computer printout with original program sheet to assure accuracy of machine instructions. Revises program to eliminate instruction errors or omissions. Observes operation of machined on trial run to prove taped or programmed instructions.

ON-THE-JOB TRAINING:

APPROXIMATE HOURS

1. Job orientation, familiarization with company policies	150
2. Acquaint the apprentice with the tools of the trade	200
3. Assemble cutting tools	100
4. Loading of programs	100
5. Attaching and positioning of fixtures	250
6. Entering offsets or machine parameters	250
7. Entering and changing machine commands	100
8. Observe machine operation to detect malfunctions	700
9. Work holding and fixturing	100
10. Analyze drawings, sketches, design data	500
11. Drawing, CAD/CAM	1500
12. Writing programs for machine operations	2000
13. Program maintenance	50
TOTALHOURS	6000

Safety and safe working practices shall be adhered to throughout the apprenticeship.

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RELATED INSTRUCTION
TOOL PROGRAMMER, NUMERICAL
O*NET/SOC CODE: 51-4012.00 RAPIDS CODE: 0690

Related instruction - This instruction may include, but not be limited to:

Note: Due to regional and local code differences and climate conditions, duration of instructional competencies/modules are suggested estimates.

	HOURS
<u>FIRST YEAR</u>	144
Manufacturing processes	
Blueprint Reading and Drawing	
Machine Tools (operation of lathe, milling machines, grinders, drill press)	
Materials of industry (familiarity with various materials used in industry)	
Industrial mathematics	
Safety practices and procedures	
<u>SECOND YEAR</u>	144
Computer numerically controlled machines (operation and maintenance)	
Machine tool and design drafting	
Computer literacy	
Applied hydraulics, pneumatics, and electricity	
<u>THIRD YEAR</u>	144
Trigonometry	
Oral and written communications	
Computer aided drafting	
Microcomputer applications	
	TOTAL HOURS
	432
Recommended Related Instruction Hours - 432 (144 hours per year)	