# Competency Task List – Secondary Component

# Machine Tool Technology/Machinist CIP 48.0501

# High School Graduation Years 2022, 2023, 2024

## 100 Orientation/Safety

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| --- | --- | --- | --- |
| Item | Task | (X) Indicates Proficiency 1 | Secondary Course Crosswalk |
| 101 | Follow Occupational Safety and Health Administration (OSHA) regulations. |  |  |
| 102 | RESERVED |  |  |
| 103 | Apply general shop safety procedures. |  |  |
| 104 | RESERVED |  |  |
| 105 | RESERVED |  |  |
| 106 | Follow Safety Data Sheets (SDS). |  |  |
| 107 | RESERVED |  |  |

## 200 Performing Layout Work

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Task | (X) Indicates Proficiency 1 | Secondary Course Crosswalk |
| 201 | Perform layout work. |  |  | |
| 202 | RESERVED |  |  | |
| 203 | RESERVED |  |  | |

## 300 Part Inspection

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| --- | --- | --- | --- |
| Item | Task | (X) Indicates Proficiency 1 | Secondary Course Crosswalk |
| 301 | Use precision measuring instruments. |  |  | |
| 302 | Calibrate precision measuring instruments. |  |  | |
| 303 | Create quality control procedures. |  |  | |

## 400 Bench Work

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Task | (X) Indicates Proficiency 1 | Secondary Course Crosswalk |
| 401 | Apply bench work safety procedures. |  |  | |
| 402 | Cut material with a hand hacksaw. |  |  | |
| 403 | File work to specifications. |  |  | |
| 404 | Cut threads with hand taps and dies. |  |  | |
| 405 | RESERVED |  |  | |
| 406 | Select and use hand tools. |  |  | |
| 407 | Use a hand arbor and hydraulic press. |  |  | |

## 500 Drill Presses

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Task | (X) Indicates Proficiency 1 | Secondary Course Crosswalk |
| 501 | Apply drill press safety procedures. |  |  | |
| 502 | Operate drill press work holding devices. |  |  | |
| 503 | RESERVED |  |  | |
| 504 | RESERVED |  |  | |
| 505 | Select correct drill sizes for drill press application. |  |  | |
| 506 | RESERVED |  |  | |
| 507 | Demonstrate counterboring, spotfacing, reaming, and countersinking. |  |  | |
| 508 | RESERVED |  |  | |
| 509 | RESERVED |  |  | |
| 510 | RESERVED |  |  | |
| 511 | RESERVED |  |  | |

## 600 Grinding Machines

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Task | (X) Indicates Proficiency 1 | Secondary Course Crosswalk |
| 601 | Apply pedestal and surface grinding safety procedures. |  |  | |
| 602 | Identify parts of pedestal grinder. |  |  | |
| 603 | Test, mount, and dress grinding wheels. |  |  | |
| 604 | Grind and sharpen tools. |  |  | |
| 605 | RESERVED |  |  | |
| 606 | RESERVED |  |  | |
| 607 | RESERVED |  |  | |
| 608 | Identify parts of surface grinder. |  |  | |
| 609 | Grind surfaces flat and parallel using a magnetic chuck. |  |  | |
| 610 | Grind work surfaces square with a vise or angle plate. |  |  | |
| 611 | Grind precision angles using a sine plate or sine bar. |  |  | |

## 700 Lathes

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Task | (X) Indicates Proficiency 1 | Secondary Course Crosswalk |
| 701 | Apply lathe safety procedures. |  |  | |
| 702 | Indicate work piece in a 4-jaw chuck. |  |  | |
| 703 | Align centers. |  |  | |
| 704 | Face workpiece. |  |  | |
| 705 | RESERVED |  |  | |
| 706 | Turn inside and outside diameters to shoulders. |  |  | |
| 707 | Turn tapers. |  |  | |
| 708 | Demonstrate knurling. |  |  | |
| 709 | Part off and groove workpiece. |  |  | |
| 710 | Cut internal and external threads. |  |  | |
| 711 | RESERVED |  |  | |
| 712 | File and polish workpiece. |  |  | |
| 713 | RESERVED |  |  | |
| 714 | Perform boring operations. |  |  | |
| 715 | Install and remove tool holders. |  |  | |
| 716 | Select and apply work holding devices. |  |  | |
| 717 | RESERVED |  |  | |
| 718 | RESERVED |  |  | |
| 719 | Select gears for lathe operations. |  |  | |
| 720 | Perform drilling operations. |  |  | |

## 800 Milling Machines

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| --- | --- | --- | --- |
| Item | Task | (X) Indicates Proficiency 1 | Secondary Course Crosswalk |
| 801 | Apply milling machine safety procedures. |  |  | |
| 802 | Tram a mill head. |  |  | |
| 803 | Mount and indicate vise. |  |  | |
| 804 | Mill angles. |  |  | |
| 805 | Mill keyways. |  |  | |
| 806 | RESERVED |  |  | |
| 807 | RESERVED |  |  | |
| 808 | RESERVED |  |  | |
| 809 | Use an edge finder. |  |  | |
| 810 | Differentiate between climb milling and conventional milling. |  |  | |
| 811 | Use an adjustable boring head. |  |  | |
| 812 | RESERVED |  |  | |
| 813 | Install and remove cutting tool holders. |  |  | |
| 814 | Select cutting tool for milling operations. |  |  | |
| 815 | Square part. |  |  | |
| 816 | Select cutting tool for drilling operations. |  |  | |

## 900 Power Saw

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| --- | --- | --- | --- |
| Item | Task | (X) Indicates Proficiency 1 | Secondary Course Crosswalk |
| 901 | Apply power saw safety procedures. |  |  | |
| 902 | RESERVED |  |  | |
| 903 | RESERVED |  |  | |
| 904 | Follow the 3 tooth rule. |  |  | |
| 905 | Saw work piece. |  |  | |
| 906 | RESERVED |  |  | |

## 1000 Machines and Tools

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| --- | --- | --- | --- |
| Item | Task | (X) Indicates Proficiency 1 | Secondary Course Crosswalk |
| 1001 | Lubricate and maintain machinery. |  |  | |
| 1002 | Clean and store equipment. |  |  | |
| 1003 | Inspect machine guards. |  |  | |
| 1004 | RESERVED |  |  | |
| 1005 | RESERVED |  |  | |

## 1100 Metallurgy

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| --- | --- | --- | --- |
| Item | Task | (X) Indicates Proficiency 1 | Secondary Course Crosswalk |
| 1101 | Identify metals classifications. |  |  | |
| 1102 | Identify metal property applications. |  |  | |
| 1103 | Identify heat-treating and annealing processes. |  |  | |

## 1200 Charts and References

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| --- | --- | --- | --- |
| Item | Task | (X) Indicates Proficiency 1 | Secondary Course Crosswalk |
| 1201 | Use the decimal equivalent chart. |  |  | |
| 1202 | Calculate speeds and feeds. |  |  | |
| 1203 | Use tap and drill charts. |  |  | |
| 1204 | Use Machinery handbook and/or shop references to locate information. |  |  | |

## 1300 Blueprint Reading

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Task | (X) Indicates Proficiency 1 | Secondary Course Crosswalk |
| 1301 | Identify orthographic views and projections. |  |  | |
| 1302 | RESERVED |  |  | |
| 1303 | Identify the alphabet of lines and symbols. |  |  | |
| 1304 | RESERVED |  |  | |
| 1305 | Calculate material sizes. |  |  | |
| 1306 | Differentiate angle projections. |  |  | |
| 1307 | RESERVED |  |  | |
| 1308 | Interpret title block information. |  |  | |

## 1400 CNC Programming/Operations

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| --- | --- | --- | --- |
| Item | Task | (X) Indicates Proficiency 1 | Secondary Course Crosswalk |
| 1401 | Apply CNC safety procedures. |  |  | |
| 1402 | Interpret G and M codes. |  |  | |
| 1403 | RESERVED |  |  | |
| 1404 | Use Cartesian coordinate systems. |  |  | |
| 1405 | RESERVED |  |  | |
| 1406 | Prove a CNC program. |  |  | |
| 1407 | RESERVED |  |  | |
| 1408 | RESERVED |  |  | |
| 1409 | Set part zero and tool offsets. |  |  | |
| 1410 | Transfer data files to and from a CNC machine. |  |  | |
| 1411 | Use CNC control functions. |  |  | |
| 1412 | RESERVED |  |  | |
| 1413 | Select and use workholding devices. |  |  | |

1 Student Demonstrated Entry-Level Industry Proficiency as Indicated by (X)

Secondary CTE Instructor Signature \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Student Signature \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_