

| Unit/Standard Number                  | <p style="text-align: center;"><b>Machine Tool Technology/Machinist<br/>CIP 48.0501<br/>Task Grid</b></p> | <p style="text-align: center;">Proficiency Level<br/>Achieved:<br/>(X) Indicates<br/>Competency<br/>Achieved to Industry<br/>Proficiency Level</p> |
|---------------------------------------|---|--|
| <b>Secondary Competency Task List</b> |   |  |
| <b>100</b>                            | <b>ORIENTATION / SAFETY</b>   |  |
| 101                                   | Describe the Occupational Safety and Health Administration (OSHA) and its role in the machining industry. |  |
| 102                                   | RESERVED  |  |
| 103                                   | Apply general safety procedures.  |  |
| 104                                   | RESERVED  |  |
| 105                                   | RESERVED  |  |
| 106                                   | Review Safety Data Sheets (SDS).  |  |
| 107                                   | RESERVED  |  |
|                                       |   |  |
| <b>200</b>                            | <b>PERFORMING LAYOUT WORK</b>   |  |
| 201                                   | Perform layout work.  |  |
| 202                                   | RESERVED  |  |
| 203                                   | Employ basic and precision layout tools.  |  |
|                                       |   |  |
| <b>300</b>                            | <b>PART INSPECTION</b>  |  |
| 301                                   | Employ precision measuring instruments.   |  |
| 302                                   | Calibrate precision measuring instruments.  |  |
| 303                                   | Conduct quality control procedures.   |  |
|                                       |   |  |
| <b>400</b>                            | <b>BENCH WORK</b>   |  |
| 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                                   | Use hand tools.   |  |
| 407                                   | Use a hand arbor and/or hydraulic press.  |  |
|                                       |   |  |
| <b>500</b>                            | <b>DRILL PRESSES</b>  |  |
| 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 and countersinking.   |  |

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|----------------------|---|--|
| 508                  | RESERVED  |  |
| 509                  | RESERVED  |  |
| 510                  | RESERVED  |  |
| 511                  | RESERVED  |  |
|                      |   |  |
| <b>600</b>           | <b>GRINDING MACHINES</b>  |  |
| 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.  |  |
|                      |   |  |
| <b>700</b>           | <b>LATHES</b>   |  |
| 701                  | Apply lathe safety procedures.  |  |
| 702                  | Mount and indicate work piece in 3-jaw and 4-jaw chucks.  |  |
| 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                  | Use a collet attachment.  |  |
| 717                  | RESERVED  |  |
| 718                  | RESERVED  |  |

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|----------------------|---|--|
| 719                  | Select gears for lathe operations.  |  |
| <b>800</b>           | <b>MILLING MACHINES</b>   |  |
| 801                  | Apply milling machine safety procedures.  |  |
| 802                  | Tram a milling 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 cutter for milling operations.   |  |
| 815                  | Square part.  |  |
| <b>900</b>           | <b>POWER SAW</b>  |  |
| 901                  | Apply power saw safety procedures.  |  |
| 902                  | RESERVED  |  |
| 903                  | RESERVED  |  |
| 904                  | Follow the 3 tooth rule.  |  |
| 905                  | Saw work piece.   |  |
| 906                  | RESERVED  |  |
| <b>1000</b>          | <b>MACHINES AND TOOLS</b>   |  |
| 1001                 | Lubricate and maintain machinery.   |  |
| 1002                 | Clean and store equipment.  |  |
| 1003                 | Inspect machine guards.   |  |
| 1004                 | RESERVED  |  |
| 1005                 | RESERVED  |  |
| <b>1100</b>          | <b>METALLURGY</b>   |  |
| 1101                 | Identify metals classifications.  |  |
| 1102                 | Identify metal property applications.   |  |

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| 1103                 | Identify heat-treating and annealing processes.                      |  |
|                      |  |  |
| <b>1200</b>          | <b>CHARTS AND REFERENCES</b>   |  |
| 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. |  |
|                      |  |  |
| <b>1300</b>          | <b>BLUEPRINT READING</b>   |  |
| 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.                                   |  |
|                      |  |  |
| <b>1400</b>          | <b>CNC PROGRAMMING</b>   |  |
| 1401                 | Apply CNC safety procedures.   |  |
| 1402                 | Use G and M codes.   |  |
| 1403                 | RESERVED   |  |
| 1404                 | Use of 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   |  |
|                      |  |  |