|  |  |  |  |
| --- | --- | --- | --- |
| **Institution:** | Texas State Technical College Harlingen | **Award Title:** | Tool & Die Technology AAS |
| **Program:** | Machining Technology | **Award CIP Code:** | 48.0507 |

| **Duties to WECM Courses Matrix** |
| --- |
| **Machinist Level I Skill Standards****Duty #/Title** | **WECM Course Rubric, Number and Title** |
| MCHN 1305Metals and Heat Treatment | MCHN 1308 Basic Lathe | MCHN 1313Basic Milling Operations | MCHN 1320Precision Tool and Measurement | MCHN 1335Grinders, Outside, Internal, and Surface | MCHN 1338Basic Machine Shop | MCHN 1452Intermediate Machining I | MCHN 2303 Fundamentals of CNC Machine Controls | MCHN 2335 Advanced CNC Operations | MCHN 2337 Advanced Milling Operations | MCHN 2447 Specialized Tools and Fixtures |
| 1.1 Job Process Planning |  |  | x |  |  | x | x |  |  |  |  |
| 2.1 Manual Operations: Benchwork  |  |  | x |  |  | x | x |  |  |  |  |
| 2.2 Manual Operations: Layout |  | x | x |  |  | x |  |  |  |  |  |
| 2.3 Turning Operations-Between Centers Turning |  | x |  |  |  |  | X |  |  |  |  |
| 2.4 Turning Operations-Chucking |  | x |  |  |  | x | X |  |  |  |  |
| 2.5 Milling: Square Up Block |  |  | x |  |  | x | x |  |  |  |  |
| 2.6 Vertical Milling |  |  | x |  |  |  | x |  |  |  |  |
| 2.7a Surface Grinding, Grinding Wheel Safety | x |  |  |  | x |  |  |  |  |  |  |
| 2.7b Surface Grinding, Horizontal Spindle, Reciprocating Table | x |  |  |  | x |  |  |  |  |  |  |
| 2.8 Drill Press  |  |  | x |  |  | x |  |  |  |  |  |
| 2.9 CNC Programming |  |  |  |  |  |  |  | x | x |  |  |
| 3.1 Part Inspection |  |  |  | x |  |  | x |  |  |  |  |
| 3.2 Process Control |  |  |  | x |  |  | x |  |  |  |   |
| 4.1 Process Adjustment, Single Part Production  |  | x | x |  |  |  |  |  |  |  |  |
| 4.2 Participation in Process Improvement | x |  | x |  |  |  |  |  | x |  |  |
| 5.1 General Housekeeping and Maintenance |  |  | x |  |  | x |  |  |  |  |  |
| 5.2 Preventive Maintenance, Machine Tools |  | x | x |  |  | x |  |  |  |  |  |
| 5.3 Tooling Maintenance |  | x | x |  |  | x | X |  |  |  |  |
| 6.1 Machine Operations and Material Handling |  | x | x |  |  | x |  |  |  |  |  |
| 6.2 Hazardous Materials Handling and Disposal |  |  |  |  | x | x |  |  | x |  |  |
| 7.1 Career Planning |  |  |  |  |  |  |  |  | x |  | x |
| 7.2 Job Applications and Interviewing |  |  |  |  |  |  |  |  | x |  | x |
| 7.3 Teamwork and Interpersonal Relations |  |  |  |  |  |  |  |  | x |  | x |
| 7.4 Organizational Structures and Work Relations |  |  |  |  |  |  |  |  | x |  | x |
| 7.5 Employment Relations |  |  |  |  |  |  |  |  | x |  | x |

| **Duties to WECM Courses Matrix** |
| --- |
| **Machinist Level II Skill Standards****Duty #/Title** | **WECM Course Rubric, Number and Title** |
| MCHN 1305Metals and Heat Treatment | MCHN 1308 Basic Lathe | MCHN 1313Basic Milling Operations | MCHN 1320Precision Tool and Measurement | MCHN 1335Grinders, Outside, Internal, and Surface | MCHN 1338Basic Machine Shop | MCHN 1452Intermediate Machining II | MCHN 2303 Fundamentals of CNC Machine Controls | MCHN 2335 Advanced CNC Operations | MCHN 2337 Advanced Milling Operations | MCHN 2447 Specialized Tools and Fixtures |
| 1.1 Job Process Planning  |  |  | X |  |  | X | X |  |  |  |  |
| 2.1 Layout Bolt Circles, Angles, Points of Tangency and Profiles of a Line  |  |  |  |  |  |  | X |  | X |  |  |
| 2.2 Contour Bandsawing |  |  |  |  |  | X |  |  |  | X |  |
| 2.3 Turning: Between Centers Taper Turning |   | x |   |   |   |   | X |   |   |   |  |
| 2.4 Turning: Chucking, O.D. and I.D. Tapers Using a Taper Attachment |   | x |   |   |   |  | X |   |   |   |  |
| 2.5 Vertical Mill: Precision Location of Holes |   |   |  X |   |   |  | X |   |   |  | X |
| 2.6 Milling: Keyseat |   |   |  X |   |   | X | X |   |   |  |   |
| 2.7 Milling: Deep Slots with a Staggertooth Cutter |   |   |   |   |   |   | X |   |   | X |   |
| 2.8 Milling: Rotary Tables |   |   |   |   |   |   | X |   |   | X | X |
| 2.9 Milling: Dividing Head Operations |   |   |   |   |   |   | X |   |   | X |   |
| 2.10 Basic Horizontal Boring Mill Operations |   |   |   |   |   |   | X |   |   | X |   |
| 2.11 Drilling: Radial Drill |   |   |   |   |   | X |   |   |   |   | x  |
| 2.12 Machine Tool Power Tapping: Taper Reaming & Pipe Tapping |   |   | X |   |   |   |  X |   |   |   |   |
| 2.13 Surface Grinding: Finish Flats to +/-.0005  | X |   |   |   | X |   |   |   |   |   |  |
| 2.14 Surface Grinding: Finish Flats at Simple Angles and Grind Contour Radii | X |   |   |   |   |   |   |   |   |   | X |
| 2.15 Grinding Wheel Preparation and Balancing | X |   |   |   | X |   |   |   |   |   |  |
| 2.16 Cylindrical Grinding |   |   |   |   | X |   |   |   |   |   | X |
| 2.17 EDM: Produce an Electrode and Operate a Plunge EDM |   |   |   |   |   |   |   |   | X |  X |   |
| 2.18 EDM: 2 Axis Wire EDM |   |   |   |   |   |   |   |   | X  |  X |   |
| 2.19 CNC: Simple RS274-D Programs |   |   |   |   |   |   |   |  X | X |   |   |
| 2.20 CNC: Milling Machine |   |   |   |   |   |   |  | X | X |   | x |
| 2.21 CNC: Lathe |   |   |   |   |   |   |   | X | X |   |  |
| 3.1 Inspection: Optical Comparator |  |  |  | X |  |  |  |  |  | X |  |
| 3.2 Inspection: Manual Coordinate Measuring Machine |  |   |   | X |   |   |   |   |   |  X |  |
| 4.1 Participate in Capability Studies |   |   |   |   |   |   | X  |   |   |   |  x |
| 5.1 General Housekeeping and Maintenance |  | X | X |  |  | X |  |  |  |  |  |
| 5.2 Preventive Machine Maintenance  |  | X | X |  |  | X |  |  |  |  |  |
| 5.3 Tooling Maintenance |  | X | X |  |  | X |  |  |  |  |  |
| 6.1 Machine Operations and Material Handling |  | X | X |  |  | X |  |  |  |  |  |
| 6.2 Hazardous Materials Handling and Storage |  |  |  |  | X | X |  |  | X |  |  |
| 7.1 Career Planning |   |   |   |   |   |   |  |   |   |   | x  |
| 7.2 Job Applications and Interviewing |   |   |   |   |   |   |   |   |   |   |  x |
| 7.3 Teamwork and Interpersonal Relations |   |   |   |   |   |   |   |   |   |   |  x |
| 7.4 Organizational Structures and Work Relations |   |   |   |   |   |   |   |   |   |   | x  |
| 7.5 Employment Relations |   |   |   |   |   |   |   |   |   |   |  x |