

Crawford County
Career  **Technical**
 Center

Unit/Standard Number	Machine Tool Technology/Machinist CIP 48.0501 Task Grid	Proficiency Level Achieved: (X) Indicates Competency Achieved to Industry Proficiency Level
	Secondary Competency Task List	
100	ORIENTATION / SAFETY	
101	Describe the Occupational Safety and Health Administration (OSHA) and its role in the machining industry.	
102	Identify and explain safety equipment and procedures.	
103	Identify and explain general safety precautions.	
104	Identify and describe personal/lab safety requirements.	
105	Explain Right to Know Law.	
106	Explain location of SDS.	
107	Explain potential hazardous trade materials.	
200	PERFORMING LAYOUT WORK	
201	Perform layout work for NIMS certification.	
202	Prepare materials for layout.	
203	Identify and use basic and precision layout tools.	
300	PART INSPECTION	
301	Identify, care for, and use precision measuring instruments.	
302	Calibrate precision measuring instruments.	
303	Describe methods used for quality control.	

Crawford County
Career  **Technical**
 Center

400	BENCH WORK	
401	Demonstrate safety procedures when performing bench work.	
402	Cut material with a hand hacksaw.	
403	File work to specifications.	
404	Cut threads with hand taps and dies.	
405	Assemble and disassemble parts.	
406	Identify and use bench hand tools.	
407	Identify and use a hand arbor and/or hydraulic press.	
500	DRILL PRESSES	
501	Demonstrate safety precautions when using the drill press.	
502	Select and demonstrate proper use of drill work holding devices.	
503	Calculate speeds and feeds.	
504	Demonstrate the use of center drill.	
505	Select correct drill sizes for various application.	
506	Pre-drill and ream various size holes.	
507	Demonstrate counterboring, spotfacing and countersinking.	
508	Pre-drill and tap holes.	
509	RESERVED	
510	Sharpen various size twist drills.	
511	Select & demonstrate workholding devices.	
600	GRINDING MACHINES	
601	Demonstrate knowledge and application of OSHA safety rules using pedestal and surface grinding machines.	
602	Identify parts of pedestal grinder.	
603	Demonstrate the proper way to test, mount and dress grinding wheels.	
604	Grind and sharpen various lathe tools.	
605	RESERVED	
606	RESERVED	

Crawford County Career Technical Center

607	Identify and demonstrate surface grinding safety procedures.	
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	
701	Identify and demonstrate lathe safety procedures.	
702	Mount and true work piece in 3-jaw and 4-jaw chucks.	
703	Align centers.	
704	Face workpiece.	
705	Turn outside diameters.	
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	Demonstrate machine tapping for internal threads.	
712	Demonstrate filing and polishing.	
713	Demonstrate die thread cutting.	
714	Demonstrate boring.	
715	Demonstrate various tool holders and their correct use.	
716	Demonstrate the use of a collect attachment.	
717	Demonstrate the proper lathe maintenance procedure.	
718	Set machine correctly for various speeds and feeds.	
719	Demonstrate proper gear selection for threading operations.	
800	MILLING MACHINES	
801	Identify and demonstrate safety procedures for using a milling machine.	
802	Demonstrate tramming a milling head.	
803	Select, mount and indicate vise.	
804	Machine angles.	

Crawford County Career Technical Center

805	Machine keyways.	
806	Select and demonstrate the use of face mills.	
807	Demonstrate the use of a digital indexing procedures.	
808	Demonstrate use of digital readout.	
809	Demonstrate use of edge finder.	
810	Identify the difference between climb and conventional milling.	
811	Demonstrate use of adjustable boring head.	
812	Calculate speeds and feeds.	
813	Install and remove cutting tool holding devices properly.	
814	Select appropriate cutter for various milling operations.	
815	Demonstrate how to square part.	
900	POWER SAW	
901	Identify and demonstrate safety procedures for using vertical and horizontal power saws.	
902	Demonstrate cutting and welding saw blades.	
903	Remove and replace saw blades.	
904	Demonstrate 3 tooth rule for selecting blades.	
905	Demonstrate accurate sawing.	
906	Select and set speeds for various sawing operations.	
1000	MACHINES AND TOOLS	
1001	Demonstrate proper lubrication and maintenance of machinery.	
1002	Clean and store hand tools, cutters, fixtures and attachments.	
1003	Inspect and adjust machine guards.	
1004	Select, prepare and store coolants, cutting oils and compounds.	
1005	Inspect, clean, and maintain a safe working area.	
1100	METALLURGY	
1101	Identify and explain metals classifications.	
1102	Identify and explain metal property applications.	
1103	Identify and explain heat-treating and annealing processes.	
1200	CHARTS AND REFERENCES	

Crawford County
Career  **Technical**
 Center

1201	Use the numeric decimal equivalent chart.	
1202	Use speed and feed charts.	
1203	Utilize tap and drill charts.	
1204	Demonstrate use of the Machinery's Handbook to locate specific information.	
1300	BLUEPRINT READING	
1301	Identify and explain orthographic views and projections.	
1302	Demonstrate basic sketching and dimensioning.	
1303	Identify and explain the alphabet of lines.	
1304	Demonstrate knowledge of dimensioning of machine parts, as well as tolerance and fits.	
1305	Calculate material sizes based upon job needs.	
1306	Demonstrate knowledge of third angle projections.	
1307	Identify and interpret geometric dimensioning and tolerancing.	
1400	CNC PROGRAMMING	
1401	Explain and demonstrate CNC safety procedures.	
1402	Demonstrate basic use of G and M codes.	
1403	Demonstrate use of numerical controls.	
1404	Identify and demonstrate use of Cartesian and polar coordinate systems.	
1405	Demonstrate absolute and incremental positioning.	
1406	Demonstrate the dry or practice run of a CNC program before machining.	
1407	Identify and explain advantages and disadvantages of CNC machining.	
1408	Calculate and apply machine feeds and speeds.	
1409	Set part zero and tool offsets.	
1410	Transfer data files to and from a CNC machine.	
1411	Identify and demonstrate use of MDI applications.	
1412	Program and produce a part using linear and circular interpolation.	