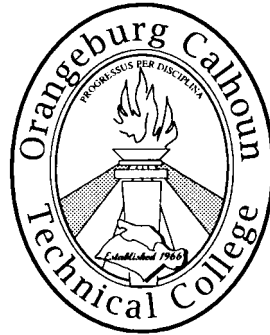


INDUSTRIAL TECHNOLOGY
Electives in Machine Tool Technology
COMPETENCY PROFILE



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Electives in Machine Tool Technology
COMPETENCY PROFILE

Graduate may enter the work world as an entry level computer operations programmer.

A. PERFORM* TECHNICAL MATH	A-1 CONVERT BETWEEN METRIC & ENGLISH SYSTEM <i>e.g. Add, Subtract, Multiply, Divide, Fractions, Convert Fractions to Decimals</i>	A-2 SOLVE BASIC SHOP FORMULAS (Metric & English)	A-3 USE BASIC ALGEBRA FUNCTIONS & CALCULATE TRANGLES <i>e.g. Basic Trigonometry</i>	A-4 USE MACHINISTS' HANDBOOKS	
B. SET-UP & OPERATE* MACHINE SHOP EQUIPMENT	B-1 OPERATE LATHES	B-2 OPERATE MILLS & SQUARING METAL	B-3 OPERATE DRILL PRESS	B-4 OPERATE GRINDERS SURFACE SQUARING ID/OD	B-5 OPERATE SAWS
	B-6 OPERATE & CARE FOR JIG GRINDER	B-7 PRACTICE PREVENTIVE MAINTENANCE	B-8 ACQUIRE KNOWLEDGE OF EDM	B-9 SET UP PUNCH PRESS	
C. PERFORM TOOLING	C-1 SELECT PROPER CUTTING TOOLS	C-2 USE CORRECT TOOL GEOMETRY	C-3 USE & CARE FOR HAND TOOLS	C-4 BECOME FAMILIAR WITH CORRECT COOLANT & CUTTING OILS	C-5 COMPUTE FEEDS & SPEED FOR CERTAIN TYPES OF METAL
D. BUILD BASIC DIES, JIGS, & FIXTURES	D-1 DRAW & DETAIL DIE	D-2 BUILD, ASSEMBLE, & TEST BASIC BLANK DIE	D-3 BUILD, ASSEMBLE, & TEST PIERCED DIE	D-4 BUILD, ASSEMBLE, & TEST BASIC JIGS & FIXTURES	D-5 ACQUIRE KNOWLEDGE OF PROGRESSIVE DIE
	D-6 ACQUIRE KNOWLEDGE OF DRAW DIE TONNAGE	D-8 SELECT DIE SET	D-9 SELECT CORRECT MATERIALS	D-10 CALCULATE TONNAGE	D-11 PREPARE CORRESPONDENCE & REPORTS
E. READ & DRAW* BLUEPRINTS	E-1 IDENTIFY NAME, PARTS, SCALE, & ISSUE NUMBER	E-2 IDENTIFY SYMBOLS & MATERIALS IN ENGLISH & METRIC	E-3 UNDERSTAND & USE STANDARD GEOMETRIC TOLERANCE SYMBOLS	E-4 READ METRIC BLUEPRINTS	E-5 SKETCH BLUEPRINTS
	E-6 DEVELOP INSPECTION TECHNIQUES FOR BLUE PRINTS	E-7 CREATE AUTO CAD DRAWINGS			

F. PRACTICE SAFETY	F-1 FOLLOW SAFETY RULES	F-2 USE PERSONAL PROTECTIVE EQUIPMENT	F-3 PERFORM GOOD HOUSEKEEPING	F-4 REPORT HAZARDOUS CONDITIONS	F-5 FOLLOW OSHA REGULATIONS
	F-6 READ HAZARDOUS COMMUNICATIONS				
G. EXHIBIT PROFESSIONALISM	G-1 FOLLOW COMPANY & SHOP POLICIES	G-2 PRACTICE TIME MANAGEMENT	G-3 ADHERE TO WORK SCHEDULE (Time & Attendance)	G-4 TAKE PRIDE IN WORKMANSHIP, QUALITY, & QUANTITY	G-5 PLAN WORK SEQUENCE/VISUALIZE END PRODUCT BEFORE STARTING
	G-6 ORGANIZE TOOL BOX	G-7 PRACTICE THE ORGANIZATIONAL "5-S"	G-8 BE COOPERATIVE & BE A TEAM PLAYER	G-9 DEVELOP AWARENESS OF DOWNTIME	G-10 SHARE TECHNICAL KNOWLEDGE
	G-11 PRACTICE SELF-MOTIVATION	G-12 PRACTICE SELF-DISCIPLINE	G-13 EXHIBIT POSITIVE ATTITUDE	G-14 EXERCISE CREATIVITY	G-15 DEVELOP PROBLEM SOLVING SKILLS
	G-16 DEVELOP TEAM LEADERSHIP SKILLS <i>e.g. Speaking, Recording, Time Keeping</i>	G-17 DEVELOP LEADERSHIP SKILLS	G-18 ENHANCE SELF-ESTEEM		
H. COMMUNICATE EFFECTIVELY	H-1 USE SHOP TERMINOLOGY	H-2 USE CHAIN-OF-COMMAND	H-3 ASK QUESTIONS	H-4 FOLLOW WRITTEN PROCEDURES	H-5 MAKE SUGGESTIONS FOR CONTINUOUS IMPROVEMENT
	H-6 WRITE REPAIR ORDERS USING TECHNICAL WORDING	H-7 DEVELOP COMMUNICATION FOR TEAM BUILDING/PROBLEM SOLVING	H-8 WRITE A JOB CARD		

I. CARE FOR & USE PRECISION MEASURING INSTRUMENTS	I-1 READ SCALES	I-2 READ MICROMETER	I-3 READ VERNIERS	I-4 USE JO BLOCKS	I-5 USE ANGLE PLATE
	I-6 USE DIAL INDICATORS	I-7 USE SINE BAR & PLATE	I-8 USE OPTICAL COMPARATOR	I-9 USE LAYOUT TOOLS, HEIGHT GAUGE	I-10 USE HOLE GAUGES
	I-11 USE SET-UP GAUGES	I-12 USE CMM	I-13 TAKE PROPER CARE OF INSTRUMENTS	I-14 PERFORM PERIODIC CALIBRATIONS	
J. USE BASIC WELDING EQUIPMENT	J-1 USE GAS WELDING EQUIPMENT	J-2 USE ELECTRIC WELDING EQUIPMENT	J-3 PRACTICE EQUIPMENT STORAGE SAFETY		
K. PERFORM BASIC CUTTER-GRINDING OF METAL WORKING TOOLS	K-1 GRIND TOOL BITS	K-2 SHARPEN DRILLS	K-3 SHARPEN END MILLS	K-4 SHARPEN REAMERS	K-5 SHARPEN COUNTER BORES & COUNTER SINKS
	K-6 SHARPEN BORING TOOLS	K-7 SHARPEN FORM TOOLS			
L. PERFORM BASIC HEAT-TREATMENT TECHNIQUES	L-1 IDENTIFY METALS (Inductile, Ductile, Cast Iron, Forge Steel, etc.)	L-2 SELECT CORRECT TEMPERATURE & TIME HARDENING	L-3 SELECT CORRECT QUENCHING MEDIUM	L-4 SELECT CORRECT TEMPERATURE & TIME FOR TEMPERING/DOUBLE DRAW	L-5 PERFORM VISUAL INSPECTION FOR CRACKS
	L-6 USE HARDENING TESTER				
M. OPERATE * COMPUTERIZED NUMERICAL MACHINE	M-1 CONVEY THE CONCEPT OF CNC OPERATIONS	M-2 RELATE TO PRINCIPLES OF OPERATING MACHINE	M-3 OPERATE PC/KEYBOARDING	M-4 PERFORM BASIC PROGRAMMING (Milling & Turning)	M-5 USE COMPUTERIZED DRAFTING & CAM
	M-6 PERFORM OFFSETS COMMUNICATIONS	M-7 PERFORM PARTS SETUP & COORDINATE DIMENSIONS	M-8 CHECK ID TO OD		
N. INTRODUCE STATISTICAL PROCESS CONTROL	N-1 INSPECT COMPLETE WORK	N-2 ACQUIRE KNOWLEDGE OF SPC	N-3 MAKE & READ \bar{X} R CHARTS	N-4 ASSESS PROCESS CAPABILITY	N-5 USE RANDOM SAMPLING
	N-6 ADD, PLOT THE AVERAGE AND RANGE OF 5 NUMBERS (SPC Math)				

* Identifies critical skills and attributes

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