

South King County Tech Prep Consortium

MACHINING COMPETENCIES

Renton Technical College

COMPETENCIES FOR MACHINING	
MTEC 161 Basic Math	
1.	An introductory course in mathematics
2.	Fractions, decimals, proportions
3.	Volumes, areas, strengths of materials
4.	Real-world manufacturing applications
MTEC 111 BLUEPRINT	
1.	Introductory course in blueprint reading
2.	Orthographic projection
3.	Dimensioning and tolerancing
4.	Drawings from industry
5.	Convenient write - in text
MTEC 101 MACHINE TECH 1	
1.	Introduction to measurement techniques, systems and instruments
2.	Cutting tool geometry
3.	Cutting speeds and feeds
4.	All aspects of lathe machining
5.	Horizontal and vertical bandsaw operation
**	MTEC 121 MACHINE FUND. - LATHE (8 credits)
1.	Concurrent with MTEC 101
2.	Apply the concepts and practice the techniques as they are presented
3.	I.D. O.D. turning
4.	I.D. O.D. threading
5.	Knurling
6.	Fully equipped manufacturing facility.
MTEC 185 HUMAN RELATIONS	
1.	Business and personal ethics
2.	Employee - employer responsibilities
3.	Discrimination, harassment and equality
COMPETENCIES FOR MACHINING	
MTEC 162 ALGEBRA	
1.	Emphasis on practical application
2.	Learn to manipulate algebraic equations
3.	Produce information that can be used in a manufacturing environment.
MTEC 113 BLUEPRINT 2	
1.	Interpret types of sectional views
2.	Drawing change system
3.	Gear, spline and thread specifications
MTEC 103 MACHINE TECH 2	
1.	Vertical and horizontal mill set-up and operation
2.	Indexing devices
3.	Drilling machines
4.	Surface grinding
5.	Cylindrical grinding
**	MTEC 123 MACHINE FUND. - MILL (7 credits)
1.	Concurrent with MTEC 103
2.	Apply the concepts and practice the techniques as they are presented
3.	Determination of speeds and feeds
4.	Cutter selection
5.	Work holding techniques
6.	Fully equipped manufacturing facility.

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COMPETENCIES FOR MACHINING
MTEC 163 GEOMETRY
1. Application based
2. Problem solving approach
3. Axioms and propositions linked to industrial applications
MTEC 115 BLUEPRINT 3
1. Geometric dimension and tolerance
2. Specialized blueprints
a. pneumatics
b. sheet metal
c. plastics
MTEC 105 MACHINE TECH 3
1. Material selection and properties
2. Gears and gear cutting
3. Use of hand tools
4. Electrical discharge machining
5. Laser machining
6. Water jet machining
MTEC 125 MACHINE FUND. - PREC. MACH.
1. Precision surface grinding
2. Close tolerance lathe machining
3. Close tolerance milling
4. Cell concept manufacturing
MTEC 171 EFFECTIVE COMMUNICATION
1. Effective writing, brevity and clarity
2. Presentation of technical reports
3. Oral presentation skills
COMPETENCIES FOR MACHINING
MTEC 212 MANUFACTURING RESOURCE & RESEARCH
1. Machinery's handbook - information for manufacturing
2. Thomas register - who does what where
3. The library as a manufacturing tool
4. Internet - the manufacturing resource of the 21st century
COMPETENCIES FOR MACHINING
MTEC 161 TRIGONOMETRY
1. Practical applications of right angle trigonometry using sin, cos, and tan
2. Oblique triangle math using the law of sines, and cosines
3. Trigonometry and basic physics - force vectors
6. Measurement reliability
MTEC 081 SAFETY & ENVIRONMENTAL
1. Industrial safety practices
2. Waste generation and disposal
3. EPA, OSHA, WISHA and their impact on manufacturing
4. MSDS and worker right to know
MTEC 231 INTRODUCTION TO CNC
1. Set-up and run CNC mills
2. G & M codes
3. Fundamentals of programming
4. Introduction to CAD - CAM
COMPETENCIES FOR MACHINING
IND 070 INDUSTRIAL FIRST AID / CPR
1. Industrial first aid
2. CPR card upon completion

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	MTEC 232 CNC II
1.	Set-up and run CNC lathe
2.	Program CNC lathe using a conversational control
3.	Introduction to Mastercam
	COMPETENCIES FOR MACHINING
	MTEC 233 CNC III
1.	Program using Mastercam
2.	Operate CNC mills
3.	Run parts requiring multiple set-ups
	MTEC 236 CNC IV
1.	Use of a rotary axis
2.	Program using surface modeling
3.	Machine parts with a higher degree of complexity
	COMPETENCIES FOR MACHINING
	MTEC 290 JOB SEARCH SKILLS
1.	Write an attention grabbing resume
2.	How to present yourself at an interview
3.	Find and get the job you want
	MTEC 237 CNC IV (cont'd)
1.	Multiple rotation toolpaths on a rotary axis
2.	Program multiple trimmed surfaces
3.	Process planning
4.	Job bidding
5.	Resource management

**** These are the classes & credits available for articulation.**

Approved 10/2/09