

MACHINIST/1 (180 Hours)

Course No.: 77-85-50

COMPETENCY CHECKLIST

Student Name _____

Teacher Name _____ School Site _____

Start Date _____ Completion Date _____ Certificate Date _____

Teacher Signature _____ Student Signature _____

(Signatures verify completion of course competencies)

A. ORIENTATION AND SAFETY (4 hrs)

- _____ 1. Scope and purpose of course
- _____ 2. Course content as part of Linked Learning
- _____ 3. Classroom policies and procedures
- _____ 4. Occupations available in industry
- _____ 5. Opportunities for non-trad hiring
- _____ 6. Purpose of OSHA for machinists
- _____ 7. Effect of EPA legislation on industry
- _____ 8. Proper hazardous materials removal
- _____ 9. MSDS as applied to manufacturing industry
- _____ 10. Class/work first aid & emergency procedures
- _____ 11. Responsibilities for a safe workplace
- _____ 12. Safety exam with 100% accuracy

B. RESOURCE MANAGEMENT (1 hr)

- _____ 1. Define listed terms related to topic
- _____ 2. Management of resources in industry
- _____ 3. Components of CPM and their impact
- _____ 4. Examples of effective resource management
- _____ 5. Benefits of effective resource management
- _____ 6. Economic/environmental benefits/liabilities

C. TRADE MATHEMATICS (10 hrs)

- _____ 1. Practical application of math in machining
- _____ 2. Demo problem solving with whole numbers
- _____ 3. Demo problem solving with fractions
- _____ 4. Demo problem solving with decimals
- _____ 5. Changing fractions to decimals
- _____ 6. Changing decimals to fractions
- _____ 7. English/metric systems of measuring length
- _____ 8. English/metric systems of measuring weight
- _____ 9. Systems of measuring volume or capacity
- _____ 10. Demo solving various measuring problems
- _____ 11. Demo measuring w/tools common to trade

- _____ 12. Metric in ascending/descending powers of 10
- _____ 13. Convert English numbering to metric system
- _____ 14. Convert metric system to English numbering
- _____ 15. Calculate square roots of English numbers
- _____ 16. Solving techniques for geometric problems
- _____ 17. Solving techniques for algebraic problems
- _____ 18. Problem solving using percentages
- _____ 19. Reading and interpreting graphs
- _____ 20. Demo techniques for using a calculator

D. TOOLS (10 hrs)

- _____ 1. Identify/demo hand tools used in industry
- _____ 2. Identify/demo precision measuring tools

E. MATERIALS (5 hrs)

- _____ 1. Define ferrous and nonferrous
- _____ 2. Differentiate two classes of materials
- _____ 3. List forms of metal identification
- _____ 4. How the two types of materials are used

F. BLUEPRINT READING (15 hrs)

- _____ 1. Identify listed information blocks
- _____ 2. Pass test in dimensions of notes
- _____ 3. Explain view or projections
- _____ 4. Identify listed types of lines
- _____ 5. Explain dimension with listed terms
- _____ 6. Explain tolerance in listed terms
- _____ 7. Symbols/abbreviations used in blueprints
- _____ 8. Pass exam in orthographic projection

G. BENCH WORK (10 hrs)

- _____ 1. Features/functions of types of files
- _____ 2. Demo use of taps and die
- _____ 3. Describe use of lubricants
- _____ 4. Identify drill sizes and types/sizes of vises

- _____ 5. Function of jaws on a vise
- _____ 6. Features/functions of types of reamers
- _____ 7. Demo listed bench work tools/techniques

H. DRILLING MACHINE OPERATION (15 hrs)

- _____ 1. Features/functions of drill presses
- _____ 2. Describe drilling machine operations
- _____ 3. Demo listed drilling machine operations

I. METAL-CUTTING OPERATION (20 hrs)

- _____ 1. Identify types of metal-cutting saws
- _____ 2. Features/functions of saw parts
- _____ 3. Identify types of metal-cutting saw blades
- _____ 4. Identify various sawing operations
- _____ 5. Demo sawing operations using various saws

J. LATHE OPERATIONS (20 hrs)

- _____ 1. Types of lathes
- _____ 2. Six principal parts of a lathe
- _____ 3. Use listed feeds and speeds
- _____ 4. Identify listed machining operations
- _____ 5. Demo various machining operations

K. MILLING OPERATION (25 hrs)

- _____ 1. Identify types of milling machines
- _____ 2. Parts of a milling machine
- _____ 3. Features of listed holding devices
- _____ 4. Features/functions of cutting tools
- _____ 5. Conventional milling versus climb milling
- _____ 6. Demo machining operations

L. GRINDING MACHINE OPERATION (15 hrs)

- _____ 1. Identify various grinding machines
- _____ 2. Functions of listed grinding machines
- _____ 3. Features/functions of abrasives
- _____ 4. List grit and grade of abrasives
- _____ 5. Features/function of types of bond
- _____ 6. Demo listed grinding operations

M. HEAT TREATMENT OPERATION (10 hrs)

- _____ 1. Identify purpose of heat treating
- _____ 2. Define listed types of hardening
- _____ 3. Demo listed hardening processes

N. TOOL AND DIE WORK OPERATION (15 hrs)

- _____ 1. Common processes uses in tool and die work
- _____ 2. Following directions in tool and die work
- _____ 3. Describe/demo tool and die processes

O. EMPLOYABILITY SKILLS (5 hrs)

- _____ 1. Employer requirements in employee
- _____ 2. Identify potential employers

- _____ 3. Role of social media in job search
- _____ 4. Sample résumés and cover letters
- _____ 5. Requirements for filling out job application
- _____ 6. Complete sample job application correctly
- _____ 7. Importance of enthusiasm in interview/on job
- _____ 8. Appropriate appearance in interview/on job
- _____ 9. Continuous upgrading of job skills
- _____ 10. Customer service as means to build business
- _____ 11. Demo appropriate interview techniques
- _____ 12. Info material to be successful in interview
- _____ 13. Design sample follow-up letters
- _____ 14. Demo appropriate follow-up procedures