

AUTO TECH: AUTOMATIC TRANSMISSION AND TRANSAXLE (180 Hours)

Course No.: 79-90-51

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 (5 hrs)

- _____ 1. Scope and purpose of course
- _____ 2. Classroom policies and procedures
- _____ 3. Class/workplace emergency procedures
- _____ 4. Occupations in industry for auto technicians
- _____ 5. OSHA governance for auto techs
- _____ 6. EPA standards for transportation industry
- _____ 7. ARB legislation for transportation industry
- _____ 8. BAR standards for safety/environment
- _____ 9. MSDS in automotive industry
- _____ 10. Safety items required by feds/state/local
- _____ 11. NATEF in auto technician training
- _____ 12. NATEF standard: protective clothing/gloves
- _____ 13. NATEF standard: protective respiratory gear
- _____ 14. NATEF standard for protective eye gear
- _____ 15. NATEF standard for proper shop ventilation
- _____ 16. NATEF standard: chemical/material disposal
- _____ 17. Safety test

B. RESOURCE MANAGEMENT (2 hrs)

- _____ 1. Define listed terms related to topic
- _____ 2. Management of time, materials, personnel
- _____ 3. Effective use of time, material, personnel
- _____ 4. Benefits of effective resource management
- _____ 5. Environmentally responsible management

C. TRADE MATHEMATICS (8 hrs)

- _____ 1. Practical applications of math in industry
- _____ 2. Problem solving w/whole number problems
- _____ 3. Various fraction problems
- _____ 4. Various decimal problems
- _____ 5. Changing fractions to decimals
- _____ 6. Changing decimals to fractions
- _____ 7. English system of measuring length
- _____ 8. English system of measuring weight

- _____ 9. English system of measuring volume/capacity
- _____ 10. Various English system linear units
- _____ 11. English system units of volume/capacity
- _____ 12. Solve English system measuring problems
- _____ 13. Demonstrate measuring using tools of trade
- _____ 14. Metric system of measuring length
- _____ 15. Metric system of measuring weight
- _____ 16. Metric system of measuring volume/capacity
- _____ 17. Various metric system linear units
- _____ 18. Various metric system units of weight
- _____ 19. Solve metric system measuring problems
- _____ 20. Use metric system measuring tools of trade
- _____ 21. Solving geometric problems related to trade
- _____ 22. Solving algebraic problems related to trade
- _____ 23. Problem-solving techniques using percentages
- _____ 24. Reading and interpreting graphs
- _____ 25. Techniques for using a calculator

D. TOOLS AND EQUIPMENT (15 hrs)

- _____ 1. Use/Maintenance/Storage of shop hand tools
- _____ 2. Use/Maintenance/Storage of shop equipment
- _____ 3. Use/Maintain/Store specialty tools/equip

E. SERVICE MANUALS AND COMPUTER-BASED INFORMATION SYSTEMS (2 hrs)

- _____ 1. Types of service manuals
- _____ 2. Information found in service manuals
- _____ 3. Use of service manuals
- _____ 4. Using CD-ROM & web search for auto tech info
- _____ 5. CD-ROM/web search vs. service manuals

F. GENERAL TRANSMISSION AND TRANSAXLE DIAGNOSIS (45 hrs)

- _____ 1. Complete work order with all pertinent info
- _____ 2. Identify and interpret concerns

- _____ 3. Applicable vehicle and service information
- _____ 4. Locate vehicle & major component ID#s
- _____ 5. Diagnose fluid loss and condition
- _____ 6. Perform pressure tests on components
- _____ 7. Perform stall test
- _____ 8. Perform lock-up converter system tests
- _____ 9. Diagnose noise and vibration concerns
- _____ 10. Diagnose transmission/transaxle concerns
- _____ 11. Define Pascal's Law
- _____ 12. Diagnose hydraulic pressure concerns
- _____ 13. Elec. transmission/transaxle control systems

G. IN-VEHICLE TRANSMISSION/TRANSAXLE MAINTENANCE AND REPAIR (35 hrs)

- _____ 1. Inspect, adjust, and replace components
- _____ 2. Inspect and replace seals/gaskets/bushings
- _____ 3. Electrical/electronic components and circuits
- _____ 4. Diagnose elec. transmission control systems
- _____ 5. Inspect, replace, & align powertrain mounts
- _____ 6. Service transmission/replace fluid & filters

H. OFF-VEHICLE TRANSMISSION AND TRANSAXLE REPAIR (55 hrs)

- _____ 1. Remove/reinstall/inspect components
- _____ 2. Disassemble/clean/inspect components
- _____ 3. Valve body and components
- _____ 4. Servo, accumulator bores and other parts
- _____ 5. Assemble transmission/transaxle
- _____ 6. Inspect/test oil cooler, lines, and fittings
- _____ 7. Inspect various different parts
- _____ 8. Install and seat torque converter
- _____ 9. Inspect, measure, and reseal oil pump
- _____ 10. Measure transmission/transaxle end play
- _____ 11. Inspect/measure/replace thrust washers
- _____ 12. Inspect oil delivery circuits and components
- _____ 13. Inspect bushings
- _____ 14. Inspect/measure planetary gear assembly
- _____ 15. Inspect case bores and related other parts
- _____ 16. Inspect transaxle drive & related other parts
- _____ 17. Work with transaxle final drive component
- _____ 18. Inspect clutch drum and related components
- _____ 19. Measure clutch pack clearance
- _____ 20. Air test clutch and servo assemblies
- _____ 21. Inspect roller & sprag clutch and other parts
- _____ 22. Inspect bands and drums
- _____ 23. Operational characteristics of CVT
- _____ 24. Characteristics of hybrid drive train

I. EMPLOYABILITY SKILLS (10 hrs)

- _____ 1. Employer requirements in an employee
- _____ 2. Continuous upgrading of job skills

- _____ 3. Benefits of industry organizations membership
- _____ 4. Adaption to roles in workplace
- _____ 5. Personal integrity/ethics in workplace
- _____ 6. Customer service to build relationships
- _____ 7. Conflict resolution strategies
- _____ 8. Respect for others feelings/cultures
- _____ 9. Identify potential employers thru job search
- _____ 10. Roles of social networking in job search
- _____ 11. Design sample résumés and cover letters
- _____ 12. Importance of accurate, legible application
- _____ 13. Common mistakes made on job applications
- _____ 14. Complete sample job applications
- _____ 15. Importance of enthusiasm on job
- _____ 16. Appropriate appearance interview/on job
- _____ 17. Materials/resources for successful interview
- _____ 18. Demo appropriate interviewing techniques

J. ENTREPRENEURIAL SKILLS (3 hrs)

- _____ 1. Entrepreneurship
- _____ 2. Characteristics of successful entrepreneurs
- _____ 3. Contributions to auto repair industry
- _____ 4. Purpose and components of a business plan
- _____ 5. Personal goals prior to starting a business
- _____ 6. Sources of monetary investment to business
- _____ 7. Various licensing requirements in industry
- _____ 8. Student as auto repair business owner
- _____ 9. Sustainable/green vs. standard practices