COURSE OUTLINE

Course: 12713 Automotive Service Technician - I

Articulation: MSJC - AUME 100 Basic Auto Mechanics, AUME 126 - Automotive Electrical

Academic Credit:

Job Title(s):

O'NET	JOB TITLE
49-3023.02	Automotive Specialty Technician
49-3093.00	Tire Repair and Changer
49-9071.00	Maintenance and Repair Workers, General
49-3023.00	Automotive Service Technicians and Mechanics
41-2022.00	Parts Sales Person

Course Description:

This course is designed to introduce the student to entry-level employment in the automobile service industry, while incorporating scientific principles related to automotive systems including Bernoulli's Principle, Boyles, Pascals, and Ohms Laws. It specifically covers safety, tires, starting-charging, maintenance service, cooling systems, tune-ups, and computer control systems. Second semester there is special focus on job search skills and electrical systems.

Hours:

Classroom	**180**	Classroom	**180**
Community Site (CC)	**0**	Coop VocEd (CVE)	**0**
Total:	**180**	**Total:**	**180**

Prerequisites:

None

Date of Last Revision: August 31, 2018

Additional Course Information:

1 **CDE Suggested Course Code: Transportation Sector - Systems Diagnostics, Service, and Repair Pathway-221 - 8530 Introduction to Systems Diagnostics, Service, and Repair**

6/26/15-Auto Serv Tech Series Courses are the same as the Maint.and Light Repair series in course content and competencies. Difference between the two is that an instructor must be AST certified to teach the courses with the title of AST.

Occupational Competencies

1 INTRODUCTION

- **A** Identifies the personal qualifications, interests, aptitudes, knowledge, and skills of successful automotive technician assistants and helpers.
- **B** Demonstrates an understanding of personal, professional, and educational requirements of this career field.
- **C** Demonstrates knowledge of policies, procedures, and regulations related to workplace health and safety.

2 UNDERSTANDING THE MATERIAL SAFETY DATA SHEETS (MSDS)

- **A** Practices safe working habits in the automotive shop/lab.
- **B** Locates, reads, and understands Material Safety Data Sheets (MSDSs) in automotive shop/lab.
- **C** Follows fire prevention and control procedures.
- **D** Practices appropriate clean up and maintenance skills.
- **E** Demonstrates safe handling of hazardous waste materials and appropriate disposal methods.

3 AUTOMOTIVE SERVICES

- **A** Engine.
- **B** Cooling.
- **D** Lubrication.
- **E** Drive Train.
- **F** Electrical/Electronic.
- **G** Fuel.
- **H** Ignition.

4 HAND TOOLS

- **A** Practices safe working habits in the shop.
- **B** Demonstrates proper use of hand tools.
- **C** Demonstrates proper use of measuring instruments.
- **D** Demonstrates tool and inventory control.
- **E** Practices appropriate clean up and maintenance skills.

5 POWER TOOLS

- **A** Practices safe working habits in the shop.
- **B** Demonstrates proper use of power tools.
- **C** Demonstrates tool and inventory control.
- **D** Practices appropriate clean up and maintenance skills.
- **E** Uses tools and machines safely and appropriately. Follows directions.

6 FASTENERS AND SEALANTS

- **A** Practices safe working habits in the shop.
- **B** Identifies and utilizes appropriate securing fasteners and sealants.
- **C** Uses service reference materials.
- **D** Practices appropriate clean up and maintenance skills.
- **E** Follows directions.

7 SHOP AND PERSONAL SAFETY

- **A** Identify general shop safety rules and procedures. Utilize safe procedures for handling of tools and equipment. Identify and use proper placement of floor jacks, jack stands, and wheel chocks. Identif and use proper procedures for safe l
- **B** Utilize proper ventilation procedures for working within the lab/shop area. Identify marked safety areas.
- **C** Identify the location and the types of fire extinguishers and other fire safety equipment; demonstrate knowledge of the procedures for using fire extinguishers and other fire safety equipment.
- **D** Identify the location and use of eye wash stations. Identify the location of the posted evacuation routes. Comply with the required use of safety glasses, ear protection, gloves, and shoes during lab/shop activities.
- **E** Identify and wear appropriate clothing for lab/shop activities. Secure hair and jewelry for lab/shop activities.
- **F** Demonstrate awareness of the safety aspects of supplemental restraint systems (SRS), electronic brake control systems, and hybrid vehicle high voltage circuits.
- **G** Demonstrate awareness of the safety aspects of high voltage circuits (such as high intensity discharge (HID) lamps, ignition systems, injection systems, etc.). Locate and demonstrate knowledge of material safety data sheets (MSDS).

8 LIFTING EQUIPMENT

- **A** Demonstrates safe use of a vehicle lift, both two post and four post.
- **B** Demonstrates safe use of floor jacks, safety stands, and wheel chocks.
- **C** Uses tools and equipment safely and appropriately.
- **D** Follows directions.
- **E** ANSI- ALI Lift Certification

9 ENGINE REPAIR

- **A** General cooling systems diagnosis.
- **B** Cooling system pressure test and inspection.
- **C** Evaluation and replacement of serpentine belts.
- **D** Evaluation, testing, and replacement of engine coolant; including dissolved metals test and specific gravity test.
- **E** Evaluation and replacement coolant hoses.
- **F** Evaluation, testing, and replacement of thermostat

10 ELECTRICAL/ELECTRONIC SYSTEMS

- **A** General Electrical System Diagnosis including: reading repair manuals, comprehension of wiring diagrams and schematics, and utilization of service information systems.
- **B** Battery Testing, Servicing, Charging, Boost-starting, and Replacement
- **C** Starting System Diagnosis and Repair.
- **D** Charging System Diagnosis and Repair.
- **E** Lighting Systems Diagnosis and Repair.
- **F** Gauges, Warning Devices, and Driver Information Systems Diagnosis and Repair.
- **G** Horn and Wiper/Washer Diagnosis and Repair.
- **H** Accessories Diagnosis and Repair.
- **I** Identification of hybrid high voltage wires.
- **J** Locate hybrid high voltage service disconnect connector.
- **K** Describe procedure for disabling and re-enableing hybrid high voltage system.

11 SUSPENSION AND STEERING

- **A** Wheels and tires.
- **B** R & I wheels.
- **C** Mount - dismount tires.
- **D** Balance tires.
- **E** Install & torque wheels.
- **F** Diagnose abnormal tire wear.
- **G** Utilize a Tire Pressure Monitoring System to diagnose and repair TPMS problems.

12 ENGINE PERFORMANCE

- **A** General Engine Diagnosis.
- **B** Computerized Controls Diagnosis and Repair.
- **C** Ignition System Diagnosis and Repair.
- **D** Fuel, Air Induction, and Exhaust Systems Diagnosis and Repair.
- **E** Emissions Control Systems Diagnosis and Repair.

13 CAREER PLANNING

- **A** Identifies personal qualifications, interests, aptitudes, information and skills necessary to succeed in this career field.
- **B** Demonstrates understanding of the importance of ethics, values, and laws as related to the work place.
- **C** Develops a career plan that is designed to reflect career interest, pathways, and post-secondary educational options.
- **D** Utilizes important strategies for self-promotion in the hiring process such as filling out job applications, resume writing, interview skills. All students will create a job search portfolio.
- **E** Creates an employment portfolio.

14 INTEGRATED MATHEMATICAL COMPONENTS; INTEGRATED LANGUAGE ARTS COMPONENTS

- **A** Demonstrate effective integrated math applications appropriate and commensurate with employment in this industry sector.
- **B** Demonstrate effective integrated Language Arts applications appropriate and commensurate with employment in this industry sector.