SPRINGFIELD TECHNICAL COMMUNITY COLLEGE

ACADEMIC AFFAIRS

Course Number: AUTO 109 **Department:** Automotive Technology
Course Title: Intro to Auto Service **Semester:** Fall **Year** 2008

Objectives/Competencies

Course Objective **(The student should develop an understanding of :)**	Competencies **(The student must be able to :)**
1. The importance of safety and accident prevention in an automotive service shop.	A. Describe what a clean and organized shop should look like and why. B. Recognize whenever there is a chance of dirt, dust, or metal shavings getting into your eyes and wear eye protection. C. Distinguish between well-fitted and loose/baggy clothing that can easily get caught in moving parts and machinery. D. Lift and carry heavy objects properly to avoid injury. E. Follow precautions that must be taken to safely raise a vehicle on a lift or floor jack. F. State what type of eye protection should be worn when using specific hand and power tools. G. Recognize fire preventive measures that should be followed. H. Select the right tool for the right job.

Course Objective	Competencies
1. continued.	I. List safety measures that must be followed when using welding equipment.
2. The purpose of the laws concerning hazardous wastes/materials and proper disposal methods.	A. Have access to and understand the occupational safety and health administration (OSHA) standards.
	B. Properly dispose of hazardous materials such as cleaning chemicals, fuels, used engine oils and transmission fluids, refrigerants, engine coolant and gear lubricants.
	C. Maintain and use waste storage containers according to OSHA standards.
	D. uses the correct filters and masks when working with automotive components containing asbestos.
3. Identify what is included in routine preventative maintenance and service procedures.	A. Accurately check all fluid levels and add where necessary – engine, transmission, power-steering, brake, coolant, battery and windshield washer fluid.
	B. Change passenger compartment and engine air filters if necessary.
	C. Drain engine oil and change filter, replace oil with proper viscosity and level.
	D. Check and adjust air pressure in tires.
	E. Identify and replace worn/cracked engine drive belts.

Course Objective	Competencies
3. continued.	F. Identify and replace worn/cracked windshield wiper blades.
	G. Rotate tires in the correct pattern and torque wheels to factory specifications.
	H. Lubricate steering, suspension ad driveline components.
4. Understand the procedure for dismounting a tire from the wheel, repairing a damaged tire, and remounting	A. Release air pressure from tire.
	B. Unseat the bead of the tire from rim on both sides – remove tire from rim.
	C. Repair a puncture in the tire thread with an adhesive patch or plug from the inside.
	D. Remount the tire on the rim and inflate to manufacture's specifications.
5. Recognize the symptoms caused by a tire/wheel out of static or dynamic balance.	A. Operate wheel balancing equipment and determine if wheel assembly is out of balance.
	B. Determine the proper location on the wheel to add or subtract weights to correct a static or dynamic imbalance.
	C. Verify wheel assembly is properly balanced before installing on vehicle.
6. Describe the overall operation of disc brake and drum brake systems including adjustments.	A. Explain how drum brakes operate.
	B. Identify the components of a typical drum brake and describe their function.

Course Objective	Competencies
6. continued.	C. Adjust a typical drum brake.
	D. Adjust a typical drum emergency brake.
	E. Explain how disc brakes operate.
	F. List disc brake components and describe their function.
	G. List the advantages of a disc brake
7. Understand how to perform both a manual and vacuum bleeding procedure from a hydraulic system.	A. Describe the term "bleeding".
	B. Determine if the hydraulic system is front to rear or diagonally split.
	C. Select the correct sequence of bleeder valves to open.
	D. Correctly install the vacuum assembly to the bleeder valve.
	E. open and close bleeder valves at the correct time to remove air from hydraulic system.
	F. Refill system to correct level with approved brake fluid.
8. Students will be capable of selecting the correct safety inspection method for a vehicle's steering and suspension system.	A. Define the term "unsprung" weight.
	B. Determine which steering and suspension components are considered "sprung" or "unsprung" weight.
	C. Locate the floor jack under the correct vehicle components (vehicle specific) to raise the tire off floor.

Course Objective	Competencies
8. continued.	D. Determine amount of wear on critical steering and suspension parts.
	E. Determine if results of inspection meet or exceed manufacturer's specifications.
9. Identify and accurately read different types of measuring instruments when servicing automobiles	A. Accurately read an inside or outside conventional micrometer.
	B. Accurately read an inside or outside metric micrometer.
	C. Measure small diameters using a telescopic gauge and outside micrometer.
	D. Using a feeler gauge and straightedge to measure a surface for warpage.
	E. Taking inside, outside and depth measurements using a vernier caliper.
	F. Measure shaft end play using a dial gauge.
10. Know the importance of using the library of electronic and hard copy information available for all areas of automotive service.	A. Demonstrate the ability to extract vehicle specific service information from the workshop manual.
	B. Accurately read and understand electrical schematic and vacuum diagrams.
	C. Follow pinpoint test steps diagnostics accurately and efficiently.

Course Objective	Competencies
10. continued.	D. Use a systematic, logical, problem-solving approach to complex systems.
11. The ability to identify commonly-used fasteners and select the correct fastener for a given application.	A. Determine if a fastener is metric (international) or or U.S. (British Imperial).
	B. Determine fastener diameter and distance between threads or pitch.
	C. Accurately read the markings on the fastener to determine the grade or strength.