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Automotive Technology I Syllabus

I. COURSE DESCRIPTION

This two-year automotive program provides practical hands-on training and experience for dedicated high school students, who are a minimum of 16 years old, who are seriously considering making a career in the automotive industry. Students will spend approximately two-thirds of their time performing hands-on, industry-focused tasks. This, combined with classroom, student-participating lectures, reviews and demonstrations, will help the student build a solid background in: brakes; suspension and steering systems; cooling and lubrication systems; engine fundamentals, operation and rebuild; electrical and electronic systems; all servicing aspects; automotive detailing; vehicle safety inspections, tools and equipment, etc. There is also a strong emphasis on shop safety and industry expectations, as well as developing critical employability and leadership skills, and professionalism.

The student will also learn and use a variety of service manuals, lube guides, and on-line automotive service and repair sights. Students should also be in fair to excellent physical shape, as they will be required to stand for extended periods of time, lean over vehicle fenders, bend over to repair or service a vehicle, and squat down many times during the day. They may also be required to lift, unassisted, vehicle parts weighing as much as 30-50 lbs.

Developing professionalism and sound employability and leadership skills are absolutely essential and they are expected in the automotive industry. Further, students must work safely at all times, demonstrate initiative, display integrity, act responsibly, and show pride in workmanship and in one’s personal appearance if they want to be successful. To help students develop and attain these 21st Century Skills they will be trained, evaluated, and graded on them, in addition to the technical subject areas listed above. Having excellent attendance is also critical to achieve maximum benefit and success.

II. STUDENT OUTCOMES

Upon completion of this course, students will be able to (Based upon Washington State approved Automotive Technology frameworks):

Unit: 1 – Engine Repair	Hours - 90	Student Competencies:
A. General Diagnoses; Removal and Reinstallation (R&R)		<ol style="list-style-type: none"> 1. Complete work order to include customer information, vehicle identifying information, customer concern, related service history, cause, and correction. 2. Research applicable vehicle and service information, such as internal engine operation, vehicle service history, service precautions, and technical service bulletins. 3. Verify operation of the instrument panel engine warning indicators.

	<ol style="list-style-type: none"> 4. Inspect engine assembly for fuel, oil, coolant, and other leaks; determine necessary action 5. Install engine covers using gaskets, seals, and sealers as required. 6. Remove and replace timing belt; verify correct camshaft timing. 7. Perform common fastener and thread repair, to include: remove broken bolt, restore internal and external threads, and repair internal threads with thread insert. 8. Inspect, remove and replace engine mounts. 9. Identify hybrid vehicle internal combustion engine service precautions. 10. Remove and reinstall engine in an OBDII or newer vehicle; reconnect all attaching components and restore the vehicle to running condition.
<p>B. Cylinder Head and Valve Train Diagnosis and Repair</p>	<ol style="list-style-type: none"> 1. Remove cylinder head; inspect gasket condition; install cylinder head and gasket; tighten according to manufacturer's specifications and procedures. 2. Clean and visually inspect a cylinder head for cracks; check gasket surface areas for warpage and surface finish; check passage condition. 3. Inspect pushrods, rocker arms, rocker arm pivots and shafts for wear, bending, cracks, looseness, and blocked oil passages (orifices); determine necessary action. 4. Adjust valves (mechanical or hydraulic lifters). 5. Inspect and replace camshaft and drive belt/chain; includes checking drive gear wear and backlash, end play, sprocket and chain wear, overhead cam drive sprocket(s), drive belt(s), belt tension, tensioners, camshaft reluctor ring/tone-wheel, and valve timing components; verify correct camshaft timing. 6. Establish camshaft position sensor indexing. 7. Inspect valve springs for square-ness and free height comparison; determine necessary action. 8. Replace valve stem seals on an assembled engine; inspect valve spring retainers, locks/keepers, and valve lock/keeper grooves; determine necessary action. 9. Inspect valve guides for wear; check valve stem-to-guide clearance; determine necessary action. 10. Inspect valves and valve seats; determine necessary action.

	<ol style="list-style-type: none"> 11. Check valve spring assembled height and valve stem height; determine necessary action.
C. Engine Block Assembly Diagnosis and Repair	<ol style="list-style-type: none"> 1. Remove, inspect, or replace crankshaft vibration damper (harmonic balancer). 2. Disassemble engine block; clean and prepare components for inspection and reassembly. 3. Inspect engine block for visible cracks, passage condition, core and gallery plug condition, and surface warpage; determine necessary action. 4. Inspect and measure cylinder walls/sleeves for damage, wear, and ridges; determine necessary action. 5. Deglaze and clean cylinder walls. 6. Inspect and measure camshaft bearings for wear, damage, out-of-round, and alignment; determine necessary action. 7. Inspect crankshaft for straightness, journal damage, keyway damage, thrust flange and sealing surface condition, and visual surface cracks; check oil passage condition; measure end play and journal wear; check crankshaft position sensor reluctor ring (where applicable); determine necessary action.
D. Lubrication and Cooling Systems Diagnosis and Repair	<ol style="list-style-type: none"> 1. Perform cooling system pressure and dye tests to identify leaks; check coolant condition and level; inspect and test radiator, pressure cap, coolant recovery tank, heater core and galley plugs; determine necessary action 2. Identify causes of engine overheating. 3. Inspect, replace, and adjust drive belts, tensioners, and pulleys; check pulley and belt alignment. 4. Inspect and test coolant; drain and recover coolant; flush and refill cooling system with recommended coolant; bleed air as required. 5. Inspect, remove, and replace water pump. 6. Remove and replace radiator. 7. Remove, inspect, and replace thermostat and gasket /seal. 8. Inspect and test fan(s) (electrical or mechanical), fan clutch, fan shroud, and air dams. 9. Perform oil pressure tests; determine necessary action. 10. Perform engine oil and filter change. 11. Inspect auxiliary coolers; determine necessary action.

	<p>12. Inspect, test, and replace oil temperature and pressure switches and sensors.</p> <p>13. Inspect oil pump gears or rotors, housing, pressure relief devices, and pump drive; perform necessary action.</p>
Unit 2 – Manual Drive Train and Axels Hours - 90	Student Competencies:
A. General Drive Train Diagnosis	<ol style="list-style-type: none"> 1. Identify and interpret drive train concerns; determine necessary action. 2. Research applicable vehicle and service information, fluid type, vehicle service history, service precautions, and technical service bulletins. 3. Check fluid condition; check for leaks; determine necessary action. 4. Drain and refill manual transmission/transaxle and final drive unit.
B: Clutch Diagnosis and Repair	<ol style="list-style-type: none"> 1. Diagnose clutch noise, binding, slippage, pulsation, and chatter; determine necessary action. 2. Inspect clutch pedal linkage, cables, automatic adjuster mechanisms, brackets, bushings, pivots, and springs; perform necessary action. 3. Inspect and replace clutch pressure plate assembly, clutch disc, release (throw-out) bearing and linkage, and pilot bearing/bushing (as applicable). 4. Bleed clutch hydraulic system. 5. Check and adjust clutch master cylinder fluid level; check for leaks. 6. Inspect flywheel and ring gear for wear and cracks; determine necessary action. 7. Measure flywheel runout and crankshaft end play; determine necessary action.
C: Transmission/Transaxle Diagnose and Repair	<ol style="list-style-type: none"> 1. Inspect, adjust, and reinstall shift linkages, brackets, bushings, cables, pivots, and levers. 2. Describe the operational characteristics of an electronically-controlled manual transmission/transaxle. 3. Diagnose noise concerns through the application of transmission/transaxle power flow principles. 4. Diagnose hard shifting and jumping out of gear concerns; determine necessary action. 5. Diagnose transaxle final drive assembly noise and vibration concerns; determine necessary action.

	<ol style="list-style-type: none"> 6. Disassemble, inspect clean, and reassemble internal transmission/transaxle components.
D: Drive Shaft and Half Shaft, Universal and Constant-Velocity (CV) Joint Diagnosis and Repair	<ol style="list-style-type: none"> 1. Diagnose constant-velocity (CV) joint noise and vibration concerns; determine necessary action. 2. Diagnose universal joint noise and vibration concerns; perform necessary action. 3. Inspect, remove, and replace front wheel drive (FWD) bearings, hubs, and seals. 4. Inspect, service, and replace shafts, yokes, boots, and universal/CV joints. 5. Check shaft balance and phasing; measure shaft runout; measure and adjust driveline angles.
E: Drive Axle Diagnosis and Repair E.1: Ring and Pinion Gears an Differential Case Assembly	<ol style="list-style-type: none"> 1. Clean and inspect differential housing; check for leaks; inspect housing vent. 2. Check and adjust differential housing fluid level. 3. Drain and refill differential housing 4. Diagnose noise and vibration concerns; determine necessary action. 5. Inspect and replace companion flange and pinion seal; measure companion flange runout. 6. Inspect ring gear and measure runout; determine necessary action. 7. Remove, inspect, and reinstall drive pinion and ring gear, spacers, sleeves, and bearings. 8. Measure and adjust drive pinion depth. 9. Measure and adjust drive pinion bearing preload. 10. Measure and adjust side bearing preload and ring and pinion gear total backlash and backlash variation on a differential carrier assembly (threaded cup or shim types). 11. Check ring and pinion tooth contact patterns; perform necessary action. 12. Disassemble, inspect, measure, and adjust or replace differential pinion gears (spiders), shaft, side gears, side bearings, thrust washers, and case. 13. Reassemble and reinstall differential case assembly; measure runout; determine necessary action.
E.2 Limited Slip Differential	<ol style="list-style-type: none"> 1. Diagnose noise, slippage, and chatter concerns; determine necessary action. 2. Measure rotating torque; determine necessary action.
E.3 Drive Axles	<ol style="list-style-type: none"> 1. Inspect and replace drive axle wheel studs.

	<ol style="list-style-type: none"> 2. Remove and replace drive axle shafts. 3. Inspect and replace drive axle shaft seals, bearings, and retainers. 4. Measure drive axle flange run out and shaft end play; determine necessary action. 5. Diagnose drive axle shafts, bearings, and seals for noise, vibration, and fluid leakage concerns; determine necessary action. <p>1. F. Four-wheel Drive/All-wheel Drive Component Diagnosis and Repair</p> <ol style="list-style-type: none"> 1. Inspect, adjust, and repair shifting controls (mechanical, electrical, and vacuum), bushings, mounts, levers, and brackets. 2. Inspect front-wheel bearings and locking hubs; perform necessary action(s). 3. Check for leaks at drive assembly seals; check vents; check lube level. 4. Identify concerns related to variations in tire circumference and/or final drive ratios. 5. Diagnose noise, vibration, and unusual steering concerns; determine necessary action. 6. Diagnose, test, adjust, and replace electrical/electronic components of four-wheel drive systems. 7. Disassemble, service, and reassemble transfer case and components.
<p>Unit 3: Brakes Hours - 180</p>	<p>Student Competencies:</p>
<p>A. General: Brake Systems Diagnosis</p>	<ol style="list-style-type: none"> 1. Identify and interpret brake system concerns; determine necessary action. 2. Research applicable vehicle and service information, vehicle service history, service precautions, and technical service bulletins. 3. Describe procedure for performing a road test to check brake system operation; including an anti-lock brake system (ABS). 4. Install wheel and torque lug nuts.
<p>B. Hydraulic System Diagnosis and Repair</p>	<ol style="list-style-type: none"> 1. Diagnose pressure concerns in the brake system using hydraulic principles (Pascal's Law). 2. Measure brake pedal height, travel, and free play (as applicable); determine necessary action. 3. Check master cylinder for internal/external leaks and proper operation; determine necessary action.

	<ol style="list-style-type: none"> 4. Remove, bench bleed, and reinstall master cylinder. 5. Diagnose poor stopping, pulling or dragging concerns caused by malfunctions in the hydraulic system; determine necessary action. 6. Inspect brake lines, flexible hoses, and fittings for leaks, dents, kinks, rust, cracks, bulging, and wear; check for loose fittings and supports; determine necessary action. 7. Replace brake lines, hoses, fittings, and supports. 8. Fabricate brake lines using proper material and flaring procedures (double flare and ISO types). 9. Select, handle, store, and fill brake fluids to proper level. 10. Inspect, test, and/or replace components of brake warning light system. 11. Identify components of brake warning light system. 12. Bleed and/or flush brake system. 13. Test brake fluid for contamination.
<p>C. Drum Brake Diagnosis and Repair</p>	<ol style="list-style-type: none"> 1. Diagnose poor stopping noise, vibration, pulling, grabbing, dragging or pedal pulsation concerns; determine necessary action. 2. Remove, clean, inspect and measure brake drum diameter; determine necessary action. 3. Refinish brake drum and measure final drum diameter; compare with specifications. 4. Remove, clean, and inspect brake shoes, springs, pins, clips, levers, adjusters/self-adjusters, other related brake hardware, and backing support plates; lubricate and reassemble. 5. Inspect wheel cylinders for leaks and proper operation; remove and replace as needed. 6. Pre-adjust brake shoes and parking brake; install brake drums or drum/hub assemblies and wheel bearings; perform final checks and adjustments.
<p>D. Disc Brake Diagnosis and Repair</p>	<ol style="list-style-type: none"> 1. Diagnose poor stopping, noise, vibration, pulling, grabbing, dragging, or pulsation concerns; determine necessary action. 2. Remove and clean caliper assembly; inspect for leaks and damage/wear to caliper housing; determine necessary action. 3. Clean and inspect caliper mounting and slides/pins for proper operation, wear, and damage; determine necessary action.

	<ol style="list-style-type: none"> 4. Remove, inspect, and replace pads and retaining hardware; determine necessary action. 5. Lubricate and reinstall caliper, pads, and related hardware; seat pads and inspect for leaks. 6. Clean and inspect rotor; measure rotor thickness, thickness variation, and lateral runout; determine necessary action. 7. Remove and reinstall rotor. 8. Refinish rotor on vehicle; measure final rotor thickness and compare with specifications. 9. Refinish rotor off vehicle; measure final rotor thickness and compare with specifications. 10. Retract and re-adjust caliper piston on an integrated parking brake system. 11. Check brake pad wear indicator; determine necessary action. 12. Describe importance of operating vehicle to burnish/break-in replacement brake pads according to manufacturer's recommendations.
<p>E. Power-Assist Units Diagnosis and Repair</p>	<ol style="list-style-type: none"> 1. Check brake pedal travel with, and without, engine running to verify proper power booster operation. 2. Check vacuum supply (manifold or auxiliary pump) to vacuum-type power booster. 3. Inspect vacuum-type power booster unit for leaks; inspect the check-valve for proper operation; determine necessary action. 4. Inspect and test hydraulically-assisted power brake system for leaks and proper operation; determine necessary action. 5. Measure and adjust master cylinder pushrod length. <p>1. F. Miscellaneous (Wheel Bearings, Parking Brakes, Electrical, Etc.) Diagnosis and Repair</p> <ol style="list-style-type: none"> 1. Diagnose wheel bearing noises, wheel shimmy, and vibration concerns; determine necessary action. 2. Remove, clean, inspect, repack, and install wheel bearings; replace seals; install hub and adjust bearings. 3. Check parking brake cables and components for wear, binding, and corrosion; clean, lubricate, adjust or replace as needed. 4. Check parking brake operation and parking brake indicator light system operation; determine necessary action. 5. Check operation of brake stop light system.

	<ol style="list-style-type: none"> 6. Replace wheel bearing and race. 7. Remove and reinstall sealed wheel bearing assembly. 8. Inspect and replace wheel studs.
F. Electronic Brake, Traction and Stability Control Systems Diagnosis and Repair	<ol style="list-style-type: none"> 1. Identify and inspect electronic brake control system components; determine necessary action. 2. Identify traction control/vehicle stability control system components. 3. Describe the operation of a regenerative braking system. 4. Diagnose poor stopping, wheel lock-up, abnormal pedal feel, unwanted application, and noise concerns associated with the electronic brake control system; determine necessary action. 5. Diagnose electronic brake control system electronic control(s) and components by retrieving diagnostic trouble codes, and/or using recommended test equipment; determine necessary action. 6. Depressurize high-pressure components of an electronic brake control system. 7. Bleed the electronic brake control system hydraulic circuits. 8. Test, diagnose, and service electronic brake control system speed sensors (digital and analog), toothed ring (tone wheel), and circuits using a graphing multimeter (GMM)/digital storage oscilloscope (DSO) (includes output signal, resistance, shorts to voltage/ground, and frequency data). 9. Diagnose electronic brake control system braking concerns caused by vehicle modifications (tire size, curb height, final drive ratio, etc.).
Unit 4: Electrical/Electronic Hours - 180	Student Competencies:
A. General Electrical System Diagnose	<ol style="list-style-type: none"> 1. Research applicable vehicle and service information, vehicle service history, service precautions, and technical service bulletins. 2. Demonstrate knowledge of electrical/electronic series, parallel, and series-parallel circuits using principles of electricity (Ohm's Law). 3. Demonstrate proper use of a digital multimeter (DMM) when measuring source voltage, voltage drop (including grounds), current flow and resistance. 4. Demonstrate knowledge of the causes and effects from shorts, grounds, opens, and resistance problems in electrical/electronic circuits.

	<ol style="list-style-type: none"> 5. Check operation of electrical circuits with a test light. 6. Check operation of electrical circuits with fused jumper wires. 7. Use wiring diagrams during the diagnosis (troubleshooting) of electrical/electronic circuit problems. 8. Diagnose the cause(s) of excessive key-off battery drain (parasitic draw); determine necessary action. 9. Inspect and test fusible links, circuit breakers, and fuses; determine necessary action. 10. Inspect and test switches, connectors, relays, solenoid solid state devices, and wires of electrical/electronic circuits; determine necessary action. 11. Replace electrical connectors and terminal ends. 12. Repair wiring harness. 13. Perform solder repair of electrical wiring. 14. Check electrical/electronic circuit waveforms; interpret readings and determine needed repairs. 15. Repair CAN/BUS wiring harness.
<p>B. Battery Diagnosis and Service</p>	<ol style="list-style-type: none"> 1. Perform battery state-of-charge test; determine necessary action. 2. Confirm proper battery capacity for vehicle application; perform battery capacity test; determine necessary action. 3. Maintain or restore electronic memory functions. 4. Inspect and clean battery; fill battery cells; check battery cables, connectors, clamps, and hold-downs. 5. Perform slow/fast battery charge according to manufacturer's recommendations. 6. Jump-start vehicle using jumper cables and a booster battery or an auxiliary power supply. 7. Identify high-voltage circuits of electric or hybrid electric vehicle and related safety precautions. 8. Identify electronic modules, security systems, radios, and other accessories that require re-initialization or code entry after reconnecting vehicle battery. 9. Identify hybrid vehicle auxiliary (12v) battery service, repair, and test procedures.
<p>C. Starting System Diagnosis and Repair</p>	<ol style="list-style-type: none"> 1. Perform starter current draw tests; determine necessary action. 2. Perform starter circuit voltage drop tests; determine necessary action. 3. Inspect and test starter relays and solenoids;

	<p>determine necessary action.</p> <ol style="list-style-type: none"> Remove and install starter in a vehicle. Inspect and test switches, connectors, and wires of starter control circuits; determine necessary action. Differentiate between electrical and engine mechanical problems that cause a slow-crank or a no-crank condition.
D. Charging System Diagnosis and Repair	<ol style="list-style-type: none"> Perform charging system output test; determine necessary action. Diagnose (troubleshoot) charging system for causes of undercharge, no-charge, or overcharge conditions. Inspect, adjust, or replace generator (alternator) drive belts; check pulleys and tensioners for wear; check pulley and belt alignment. Remove, inspect, and re-install generator (alternator). Perform charging circuit voltage drop tests; determine necessary action.
E. Lighting Systems Diagnosis and Repair	<ol style="list-style-type: none"> Diagnose (troubleshoot) the causes of brighter-than-normal, intermittent, dim, or no light operation; determine necessary action. Inspect interior and exterior lamps and sockets including headlights and auxiliary lights (fog lights/driving lights); replace as needed. Aim headlights. Identify system voltage and safety precautions associated with high-intensity discharge headlights.
F. Gauges, Warning Devices, and Driver Information Systems Diagnosis and Repair	<ol style="list-style-type: none"> Inspect and test gauges and gauge sending units for causes of abnormal gauge readings; determine necessary action. Diagnose (troubleshoot) the causes of incorrect operation of warning devices and other driver information systems; determine necessary action.
G. Horn and Wiper/Washer Diagnosis and Repair	<ol style="list-style-type: none"> Diagnose (troubleshoot) causes of incorrect horn operation; perform necessary action. Diagnose (troubleshoot) causes of incorrect wiper operation; diagnose wiper speed control and park problems; perform necessary action. Diagnose (troubleshoot) windshield washer problems; perform necessary action.
H. Accessories Diagnosis and Repair	<ol style="list-style-type: none"> Diagnose (troubleshoot) incorrect operation of motor-driven accessory circuits; determine necessary

	<p>action.</p> <ol style="list-style-type: none"> 2. Diagnose (troubleshoot) incorrect electric lock operation (including remote keyless entry); determine necessary action. 3. Diagnose (troubleshoot) incorrect operation of cruise control systems; determine necessary action. 4. Diagnose (troubleshoot) supplemental restraint system (SRS) problems; determine necessary action. 5. Disable and enable an airbag system for vehicle service; verify indicator lamp operation. 6. Remove and reinstall door panel. 7. Check for module communication errors (including CAN/BUS systems) using a scan tool. 8. Describe the operation of keyless entry/remote-start systems.
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Industry Standards and Competencies

<p>Shop and Personal Safety</p>	<ul style="list-style-type: none"> ● Identify general shop safety rules and procedures. ● Utilize safe procedures for handling of tools and equipment. ● Identify and use proper placement of floor jacks and jack stands. ● Identify and use proper procedures for safe lift operation. ● Utilize proper ventilation procedures for working within the lab/shop area. ● Identify marked safety areas. ● 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. ● 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. ● Identify and wear appropriate clothing for lab/shop activities. ● Secure hair and jewelry for lab/shop activities. ● Demonstrate awareness of the safety aspects of supplemental restraint systems (SRS), electronic brake control systems, and hybrid vehicle high voltage circuits. ● Demonstrate awareness of the safety aspects of high
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	<p>voltage circuits (such as high intensity discharge (HID) lamps, ignition systems, injection systems, etc).</p> <ul style="list-style-type: none"> ● Locate and demonstrate knowledge of material safety data sheets (MSDS).
Tools and Equipment	<ul style="list-style-type: none"> ● Identify tools and their usage in automotive applications. ● Identify standard and metric designation. ● Demonstrate safe handling and use of appropriate tools. ● Demonstrate proper cleaning, storage, and maintenance of tools and equipment. ● Demonstrate proper use of precision measuring tools (i.e. micrometer, dial-indicator, dial-caliper).
Preparing Vehicle for Service	<ul style="list-style-type: none"> ● Identify information needed and the service requested on a repair order. ● Identify purpose and demonstrate proper use of fender covers, mats. ● Demonstrate use of the three C's (concern, cause, and correction). ● Review vehicle service history. ● Complete work order to include customer information, vehicle identifying information, customer concern, related service history, cause, and correction.
Preparing Vehicle for Customer	<ul style="list-style-type: none"> ● Ensure vehicle is prepared to return to customer per school/company policy (floor mats, steering wheel cover).
Career Planning	<ul style="list-style-type: none"> ● Complete, discuss, and analyze the results of personality, career interest, and aptitude assessments; ● Explore the career clusters as defined by the U.S. Department of Education and summarize the career opportunities in a cluster of personal interest; ● Create a personal career portfolio including academic, certification and technical-skill requirement, career opportunities, expected wages, skills and aptitude necessary and the impact of technology on careers of personal interest. ● Determine academic/training or certification requirements for transition from one learning level to the next and explore opportunities for earning

	<p>credit/certifications in high school such as advanced placement, tech prep, International Baccalaureate, college in the high school, military and apprenticeship opportunities.</p> <ul style="list-style-type: none"> ● Develop and analyze tables, charts, and graphs related to career interests and make oral presentation regarding the career pathway of your choice. ● Develop an awareness of financial aid, scholarships, and other sources of income to support postsecondary education/training and discuss the impact of effective college and career planning. ● Identify how performance on assessments such as the SAT®, ACT®, ASVAB®, COMPASS® and ACCUPLACER® impact personal academic and career goals. ● Prepare a personal budget reflecting desired lifestyle and compare and contrast at least three careers of interest in regards to salary expectations and education/training costs. ● Prepare a program of study for at least one career of interest ● Apply knowledge gained from individual assessment to a set of goals and a career plan ● Develop strategies to make an effective transition from school to career ● Identify industry certification opportunities
<p>Personal Success</p>	<ul style="list-style-type: none"> ● Reports to work daily on time; able to take directions and motivated to accomplish the task at hand. ● Dresses appropriately and uses language and manners suitable for the workplace. ● Maintains appropriate personal hygiene ● Meets and maintains employment eligibility criteria, such as drug/alcohol-free status, clean driving record, etc. ● Demonstrates honesty, integrity and reliability ● Implement effective study skills for academic success; ● Develop personal goals using SMART (Specific Measurable Attainable Realistic Timely), objectives and strategies. ● Use interpersonal skills to facilitate effective teamwork; ● Use a problem-solving model and critical-thinking skills to make informed decisions; ● Use effective time-management and goal-setting strategies;

	<ul style="list-style-type: none"> ● Effectively use information and communication technology tools; and ● Identify skills that can be transferable among a variety of careers. ● Create and complete appropriate documents such as electronic portfolio, personal resume, employment application, letter of intent, letters of recommendation and thank you letters. ● Complete job search documents, including job applications and W-4 forms; ● Demonstrate proper interview techniques in various situations.
<p>Employability and Entrepreneurship</p>	<ul style="list-style-type: none"> ● Complies with workplace policies/laws ● Contributes to the success of the team, assists others and requests help when needed. ● Works well with all customers and coworkers. ● Negotiates solutions to interpersonal and workplace conflicts. ● Contributes ideas and initiative ● Follows directions ● Communicates (written and verbal) effectively with customers and coworkers. ● Reads and interprets workplace documents; writes clearly and concisely. ● Analyzes and resolves problems that arise in completing assigned tasks ● Organizes and implements a productive plan of work. ● Uses scientific, technical, engineering and mathematics principles and reasoning to accomplish assigned task ● Identifies and addresses the needs of all customers, providing helpful, courteous and knowledgeable service and advice as needed. ● Demonstrate effective verbal, nonverbal, written, and electronic communication skills; ● Evaluate the impact of positive and negative personal choices, including use of electronic communications such as social networking sites; ● Model characteristics of effective leadership, teamwork, and conflict management; ● Recognize the importance of a healthy lifestyle, including the ability to manage stress; ● Explore and model characteristics necessary for professional success such as work ethics, integrity,

dedication, perseverance, and the ability to interact with a diverse population; and

- Complete activities using project- and time-management techniques.
- Identify and model appropriate grooming and appearance for the workplace;
- Demonstrate dependability, punctuality, and initiative;
- Research positive interpersonal skills, including respect for diversity;
- Model appropriate business and personal etiquette in the workplace;
- Exhibit productive work habits, ethical practices, and a positive attitude;
- Demonstrate the ability to work with the other employees to support the organization and complete assigned tasks;
- Demonstrate willingness to learn and further develop skills
- Describe the importance of having a positive attitude and techniques that boost morale
- Show initiative by coming up with unique solutions and taking on extra responsibilities
- Explain the importance of setting goals and demonstrate the ability to set, reach, and evaluate goals
- Explain the importance of taking pride in work accomplished and extrinsic and intrinsic motivators that can be used to increase pride
- Identify how to prioritize work to fulfill responsibilities and meet deadlines;
- Research and compare published workplace policies and procedures;
- Summarize provisions of the Fair Labor Standards Act;
- Describe the consequences of breach of confidentiality

III. REQUIRED TEXTBOOKS AND MATERIALS

Provided by the instructor:

- *Fundamentals of Automotive Maintenance and Light Repair* – Kirk T. VanGelder and Ian W. Andrew (Replacement Cost \$160.00)
- *Auto Upkeep: Basic Car Care, Maintenance, and Repair, 2nd Edition*. Michael E. Gray and Linda E. Gray (Replacement Cost \$23.00)

- *Auto Upkeep: Basic Car Care, Maintenance, and Repair Workbook, 2nd Edition.* Michael E. Gray and Linda E. Gray (Replacement Cost \$31.00)

IV. INSTRUCTIONAL STRATEGIES:

Instructional strategies used in this classroom include:

- Face to Face classroom and shop operations
- Independent Study
- Hands-on performance based activities
- Individual and Group Projects
- Videos and demonstrations
- Automotive Technology Guest Speakers

Students will be asked to verbally relate what they've learned to their peers in a group discussion format. Students will be assigned written work and reading assignments that will reinforce the lesson plans. After thorough review the students will be given hands on assignments. Full scale individual projects and all class projects will bolster objectives. Student progress will be verified through the use of written and computer based certification exams. The instructor will demonstrate proper safety and the physical skills that students will need to learn. The instructor will then guide the students individually until the students have acquired acceptable industry proficiency. Students will be asked to perform skills individually for assessments. Every assessment will be geared to meet or exceed industry standards.

V. ASSESSMENT STRATEGIES:

- Students will be assessed in a competency based method that will track their ability to demonstrate manipulative skills, cognitive skills, and employability skills. Written assessments will be given periodically throughout the year. Exams will have multiple choice, true/false, and completion problems. Most exams include math problems that may require drawings, computations, and written explanations.
- Students will need to demonstrate pre-apprenticeship workman-like skills.
- Students will need to translate verbal and written instructions to real work settings.
- Students will be expected to show conscientious safe behaviors.
- Students will need to demonstrate effective communication and leadership skills.

VI. SIMULATED WORKPLACE REQUIREMENTS

Students in this class are exposed to real-life situations and experiences. It is expected that students follow appropriate workplace expectations as expected in the automotive technology services industry.

In this simulated workplace environment, personal electronic devices, including, but not limited to, cell phones, iPods, PSPs, mp3 players, cd players may be a disruption to the educational process and are not to be used during class time, unless specifically directed by the Instructor for purposes directly relate to the current lesson or shop activity.

VII. COLLEGE CREDIT

Students earning a "B" grade or better AND meeting all articulation requirements may earn the following college credits in this class: UP TO 4 college credits earned through Bates Technical College or UP TO 13 College credits earned through Clover Park Technical College.

VIII. EQUIVALENCY CREDIT

Students may earn equivalency credit in a general academic subject area while completing this course. Equivalency credits require additional reports, assignments, in addition to regular automotive classwork. The following equivalency credit may be earned in this class:

- .5 credit in math
- .5 credit in science

IX. INDUSTRY CERTIFICATION

SP2 Exams

- Automotive Service Pollution Prevention
- Automotive Service Safety
- Land that Job: Interview Skills for Automotive Students
- Ethics and YOU in the Automotive Industry
- Time for a Team HUDDLE! Running Successful Team Meetings
- Land that Job! Building a Resume

Valvoline General Lube Technician Certification

Precision Exams –

- 21st Century Skills
- Automotive General Service Technician

Service Technician Certification

ASE Certification Preparation Course

- A1 – Engine Repair (50 scored questions)
- A2 – Automatic Transmission/Transaxle (50)
- A3 – Manual Drive Train & Axles (40)
- A4 – Suspension & Steering (40)
- A5 – Brakes (45)
- A6 – Electrical/Electronic Systems (50)
- A7 – Heating & Air Conditioning (50)
- A8 – Engine Performance (50)
- A9 – Light Vehicle Diesel Engines (50)

X. CLASS FEES:

WST Shirt and safety classes – approximately \$20

Student supply or purchase coverall set from instructor (used is ok) \$15-\$20

XI. ATTENDANCE:

State law (RCW 28A.225.010) and school board policy recognize regular attendance is the basis of success in the classroom. Attendance is especially important at WST because of the significant amount of demonstrations and hands-on learning.

Steps to follow in case of an absence:

1. Just as you would in the workplace, students **MUST** contact the instructor if the student is absent.
2. Parents **MUST** follow-up with an email, phone call, or written documentation with the reason for the absence. (*must include student name, date of absence and reason for absence*)

XII. ACADEMIC INTEGRITY:

Cheating is by definition, an action done by a student to supply work for another student, or turn in work, use work, or rely on work that is not her/his own, other than in circumstances clearly understood to involve collaborative or group learning. District policy requires that the teacher will record a ‘zero’ in the gradebook to communicate lack of evidence. Parents will be notified if a student is caught cheating in the classroom or lab. Subsequent cheating may result in an “F” in the class and possible removal from WST.

XIII. LEADERSHIP & SKILLS USA

Leadership is a vital component of all career and technical education classes. Each day, students are expected to demonstrate strong leadership and workplace skills: arrive on-time, ready to work, attend daily, demonstrate professional and respectful behavior, problem solving skills, work with diverse groups, and exhibit positive, strong communication skills.

SkillsUSA is a career and technical student organization that creates partnerships among teachers, high school and college students, and industry partners that collaborate together to ensure America has a skilled workforce. Participation in SkillsUSA provides students with the opportunity to demonstrate leadership skills, team building, and communication and presentation skills. In addition to learning the 21st century skills, students have the opportunity to participate in both leadership and technical competitions developed by industry.

XIV. GRADING CRITERIA:

WST grades are earned at the semester, encompassing approximately 270 hours of learning/instruction each grading period. Grades are available through your family access account and are updated regularly. Grades are based on the following:

- Attain identified knowledge, skills, and abilities as well as industry standards
- Demonstrate knowledge and application of related theory
- Demonstrate attainment of 21st century skills
- Quality of work completed
- Adherence to all safety rules and expectations

XV. GRADING SCALE:

Standards-Based Grading Description	Letter Grade	Percentage Value	Point Value
Exceeds Standards	A	93-100	9300
	A-	90-92	9000
Meets Standards	B+	87-89	8700
	B	83-86	8300
	B-	80-82	8000
Approaching Standards	C+	77-79	7700
	C	73-76	7300
	C-	70-72	7000
	D+	67-69	6700
	D	60-66	6000
Does Not Meet Standard	F	Below 60	Below 6000

XVI. NON-DISCRIMINATION

Nondiscrimination Statement: The Bremerton School District does not discriminate on the basis of race, color, national origin, sex, sexual orientation, gender expression or identity, creed, religion, age, veteran or military status, disability, or the use of a trained dog guide or service animal by a person with a disability, and provides equal access to the Boy Scouts and other designated youth groups. Lack of English Language proficiency will not be a barrier to admission and participation in Career and Technical Education programs. The following personnel have been designated to handle inquiries regarding the nondiscrimination policies:

Section 504 Coordinator: John Welsh (360) 473-4107 john.welsh@bremertonschools.org

Title X and ADA Compliance: Dr. Garth Steedman (360) 473-1031
garth.steedman@bremertonschools.org



Please review, then sign, and return to the instructor:

○ Review and follow student handbook expectations: every student at West Sound Tech is expected to adhere to all policies and expectations outlined in the student handbook.

○ Attendance: Attendance is expected daily. Students that are absent **MUST** follow the requirements in the WST student handbook

○ Student Drivers: Must follow policy outlined in student handbook

○ Plagiarism policy

○ Dress Code/Uniform Requirement: Follow classroom requirements and expectations for your program and as outlined in the student handbook

○ Safety Policy: workplace safety is paramount. Students are expected to follow all safety expectations. Each classroom must meet industry safety requirements.

I have read, understand, and agree to the class rules, grading, and expectations outlined in this syllabus.

Student Name

Student Signature

Date

Parent/Guardian Name

Parent/Guardian Signature

Date

Communication between parent/guardians and instructor is extremely important for student success. Please complete the information below and indicate preferred contact method:

Parent/Guardian Cell # _____ Home # _____

Parent/Guardian Email: _____