

AUTOMOTIVE SUSPENSION AND STEERING

Pierce County Careers Connection Dual Credit Articulation Agreement

Upon completion of high school courses equivalent to the following competencies:

Must complete 100% of the following:

- Disable supplemental restraint systems (SRS) in accordance with manufacturers' procedures.
- Remove and replace manual/power rack and pinion steering gear; inspect mounting bushings and brackets.
- Inspect manual and power steering fluid levels and condition; adjust levels in accordance with vehicle manufacturers' recommendations.
- Inspect, adjust, and replace power steering pump belt(s).
- Inspect, adjust, and replace power steering hoses and fittings.
- Inspect, replace, and adjust tie rods (sockets), tie rod sleeves, clamps and tie rods ends.
- Remove, inspect, and replace MacPherson strut cartridge or assembly, strut coil spring, and insulators.
- Lubricate suspensions and steering systems.
- Inspect and service front and/or rear wheel bearings.
- Diagnose, unusual tire wear patterns; determine needed repairs.
- Inspect tires, check and adjust air pressure.
- Rotate tires according to manufacturers' recommendations.
- Perform static and dynamic balance of wheel and tire assemblies.
- Dismount, inspect, repair, and remount tire on wheel.
- Install wheel and torque lug nuts.
- Measure vehicle-riding height; determine needed repairs.
- Check and adjust front and rear-wheel camber (where applicable); determine needed repairs.
- Check and adjust caster (where applicable); determine needed repairs.
- Check and adjust front wheel toe.
- Center steering wheel.
- Wheel alignment test.

Must complete at least 35 of the following 44 competencies:

- Inspect and replace steering shaft U-joint(s), flexible coupling(s), collapsible column, lock cylinder mechanism, and steering wheel.
- Diagnose power rack and pinion steering gear vibration, looseness, and hard steering problems; determine needed repairs.
- Inspect and replace manual/power rack and pinion steering gear inner tie rod ends (sockets) and bellows boots.
- Diagnose power steering fluid leakage; determine needed repairs.
- Remove, inspect, replace power steering pump, pumps mount, pump seals and gasket.
- Remove, inspect, replace power steering pulley; check alignment.
- Flush, fill, and bleed power steering systems.
- Diagnose short and long arm suspension system noises, body sway, and uneven riding height problems; determine needed

repairs.

- Diagnose MacPherson strut suspension system noises, body sway, and uneven riding height problems; determine needed repairs.
- Remove, inspect, and replace steering knuckle assemblies.
- Remove, inspect, and replace ball joints on MacPherson strut suspension systems.
- Remove, inspect, and replace transverse links, control arms, bushings and mounts.
- Remove, inspect, and replace MacPherson strut cartridge or assembly, strut coil spring, and insulators (silencers).
- Inspect, remove, and replace shock absorbers.
- Diagnose wheel/tire vibration, shimmy, and tramp problems; determine needed repairs.
- Diagnose tire pull (lead) problems; determine corrective actions.
- Diagnose vehicle wander, drift, pull, hard steering, bump steer, memory steer, torque steer, and steering return problems; determine needed repairs.
- Check toe out on turns (turning radius); determine needed repairs.
- Check SAI (steering axis inclination) and included angle; determine needed repairs.
- Check and adjust rear wheel toe.
- Check rear wheel thrust angle; determine needed repairs.
- Check front wheel setback; determine needed repairs.
- Diagnose steering column noises, looseness, and binding problems (including tilt mechanism); determine needed repairs.
- Diagnose power non-rack and pinion steering gear, binding, uneven turning effort, looseness, hard steering, and fluid leakage problems; determine needed repairs.
- Adjust manual/power rack and pinion steering gear.
- Adjust manual or power non-rack and pinion worm bearing preload and sector lash.
- Disassemble, inspect, repair, and reassemble rack and pinion steering gear.
- Perform power steering system pressure test; determine needed repairs.
- Inspect and replace pitman arm, relay (center link/ intermediate) rod, idler arm mountings and steering linkage damper.
- Diagnose, inspect, adjust, repair or replace components of electronically controlled steering systems.
- Diagnose, inspect, repair or replace components of variable-assist steering systems.
- Remove, inspect, and replace upper and lower control arms, bushings, shafts, and rebound bumpers.
- Remove, inspect, replace, and adjust strut (compression/tension) rods and bushings.
- Remove, inspect, and replace upper and lower ball joints on short and long arm suspension systems.

- Remove, inspect, and replace short and long arm suspension system coil springs and spring insulators.
- Remove, inspect, replace, and adjust suspension system torsion bars, inspect; mounts.
- Remove, inspect, and replace stabilizer bar bushings, brackets, and links.
- Remove, inspect, and replace coil springs and spring insulators.
- Remove, inspect, and replace leaf springs, leaf spring insulators (silencers), shackles, brackets, bushings, and mounts.
- Diagnose, inspect, adjust, repair or replace components of electronically controlled suspension systems.
- Measure wheel, tire, axle, and hub run out; determine needed repairs.
- Inspect and replace front wheel drive half shafts.
- Inspect and replace front wheel drive CV boots and joints.
- Check front cradle (sub frame); determine needed repairs.

A student earning a “C” grade or better may earn college credit at the following college:

<u>College</u>	<u>Course</u>	<u>Credits</u>
Bates Technical College	AUTOM 140	4
Clover Park Technical College	AUT 149 (CIP Code 47.0604)	7